A5200-4,22F

INSURANCE SPECIAL REPORT

A-31

The Effect of Vehicle Component Parts Marking on Theft Losses

Highway Loss Data Institute

Insurance Special Report
A-31

The Effect of Vehicle Component Parts Marking on Theft Losses

HIGHWAY
LOSS
DATA
INSTITUTE

Permission to quote from or to reproduce material from this publication is granted when due acknowledgement is made.
Highway Loss Data Institute -- 1005 North Glebe Road -- Arlington, Virginia 22201
Research Report HLDI A-31; December 1989
Copyright 1989 HLDI

The membership of the Highway Loss Data Institute Board of Directors and the Technical Resource Committee represents insurance companies that are supplying data to HLDI. Financial support for HLDI is provided through the Insurance Institute for Highway Safety, which in turn is supported by most automobile insurers either directly or through their trade associations.

Board of Directors

G.C. Klingman, Chairman
The Travelers Insurance Companies

M. Albaum
Prudential Property and Casualty Insurance Company

H.L. Cohen
Government Employees Insurance Company

J.B. Conners
Liberty Mutual Insurance Company

S.F. Goldberg
United Services Automobile Association

T.A. Hoyt
Nationwide Mutual Insurance Company

R.S. Lawson
Alliance of American Insurers

S.D. Marks
Aetna Life and Casualty

D.F. Snyder
American Insurance Association

W.W. Sorenson
State Farm Mutual Automobile Insurance Company

J.S. Trees
Allstate Insurance Company

T.E. Troxel
National Association of Independent Insurers

B. O'Neill, ex officio
Highway Loss Data Institute

Technical Resource Committee

M. Albaum, Chairman
Prudential Property and Casualty Insurance Company

H.L. Cohen
Government Employees Insurance Company

R.O. Elder
Highway Loss Data Institute

S.F. Goldberg
United Services Automobile Association

T.A. Hoyt
Nationwide Mutual Insurance Company

G.C. Klingman
The Travelers Insurance Companies

S.D. Marks
Aetna Life and Casualty

R.T. Muleski
Liberty Mutual Insurance Company

B. O'Neill
Highway Loss Data Institute

W.W. Sorenson
State Farm Mutual Automobile Insurance Company

J.S. Trees
Allstate Insurance Company

CONTENTS

Summary 1

Introduction 2

Results and Discussion 2

Overall Results 2

Losses by Rural-Urban Classification 4

Vehicles In Large Metropolitan Areas 5

Vehicles Outside Large Metropolitan Areas 6

Appendix A-1 Car Lines Complying With Parts Marking Rule 8

Appendix A-2 High-Theft Car Lines Exempt form Parts-Marking for 1987 Models 8

Appendix B Definitions 9

Appendix C U.S. Department of Agriculture Rural-Urban Continuum Classification System 9

HLDI Publications 10

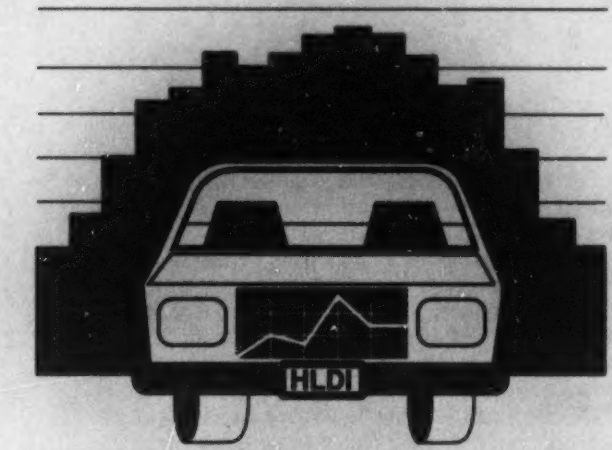
Table 1 Overall Theft Results: 1986-88 Vehicle Series Subject to Parts Marking By Year of Availability 3

Table 2 Theft Claim Distribution and Claim Frequency Index By Size of Claim: 1986-88 Vehicle Series 4

Table 3 Theft Results for Vehicles in Large Metropolitan Areas: 1986-88 Vehicle Series Subject to Parts Marking By Year of Availability 5

Table 4 Theft Results for Vehicles Outside Large Metropolitan Areas: 1986-88 Vehicles Series Subject to Parts Marking and Not Subject to Parts Marking By Year of Availability 6

Table 5 Percent of Exposure by Deductible Category for 1986-88 Vehicles Series Subject to Parts Marking and Not Subject to Parts Marking 7



SUMMARY

This Highway Loss Data Institute special report compares the theft loss experience of cars designated as high theft car lines subject to the parts marking provisions of the Motor Vehicle Theft Law Enforcement Act of 1984 with results for cars not so designated. Under this law, cars designated as high theft lines must mark major parts with the vehicle identification numbers (VIN). This is intended to reduce the incidence of thefts of cars for disassembly and sale of their body parts. In addition to overall results, data for cars garaged in metropolitan areas of over 1,000,000 population and for cars garaged outside of these metropolitan areas are presented. Parts marking was initially introduced with the 1987 models; data for 1986-88 models are included for comparison purposes.

Principal Findings

Overall Results

- Overall theft claim frequencies declined for both parts-marked cars and nonmarked cars beginning with the 1987 models, but the decline was greater for cars with parts marking.
- The decline in theft claim frequency for parts-marked cars was only for theft claims less than $10,000; the frequency of theft claims greater than $10,000 did not decline for these cars.
- The average theft loss payment increased for parts-marked cars.
- For cars with parts-marking, the average loss payment per insured vehicle year declined from the 1986 to the 1988 model year. This decline occurred because the drop in theft claim frequencies more than offset the increase in average loss payments per claim.

Vehicles In Large Metropolitan Areas

- Claim frequencies for both groups of automobiles were more than 50 percent higher in large urban areas than overall. The decline in theft frequencies for the parts-marked cars was greater in the urban areas than overall.
- For 1988 models, the theft frequency of parts-marked cars was substantially below that of the cars without parts marking.
- Average loss payments per theft claim for parts-marked vehicles increased by more than one-third over the three model years.
- The average loss payment per insured vehicle year changed little for cars without parts marking, but this measure declined for the parts-marked cars.

Vehicles Outside Large Metropolitan Areas

- Claim frequencies were substantially below the overall results for both parts-marked and on marked car lines.
- The parts-marked vehicles registered declines and the nonmarked lines increased in theft claim frequency from 1986 to 1988 models.
- The average loss payment per insured vehicle year increased for car lines without parts marking. Results were mixed for car lines with parts marking.

Conclusion

The results of this study suggest that the marking of vehicle parts with identification numbers may have reduced the incidence of thefts of such cars, especially in large urban areas where car theft is common.

INTRODUCTION

The Highway Loss Data Institute (HLDI) is a nonprofit, public service organization that gathers, processes, and publishes insurance data concerning the human and economic losses associated with owning and operating motor vehicles.

In an attempt to reduce the incidence of motor vehicle theft, Congress passed the Motor Vehicle Theft Law Enforcement Act of 1984, which directed the National Highway Traffic Safety Administration (NHTSA) to identify certain motor vehicle lines as high theft lines. NHTSA made this determination based on available theft rate data. Beginning with the 1987 model year, automobile manufacturers were required to place vehicle identification numbers on the major component parts of cars in the designated high theft lines. The identification numbers must be inscribed directly on the part or appear on labels that leave an outline or other indication if removed. Both original and replacement parts are marked.

The vehicle parts required to be marked with identification numbers, and which constitute the major source of illegal activities in "chop-shops," where stolen vehicles are disassembled for the value of their parts, include:

- Engine;
- Transmission;
- All doors;
- Hood;
- Front and rear bumpers;
- Front fenders;
- Rear deck lid;
- Both rear quarter panels.

The Act exempted from the parts-marking provision high theft car lines that were equipped with certain types of antitheft devices as standard equipment. A list of the individual vehicle series included in the parts-marked group is given in Appendix A-1, and those exempted from the standard are given in Appendix A-2. Definitions are provided in Appendix B.

This report describes the theft loss experience, under comprehensive insurance coverage, of 1986 and 1987 models during their first two years of availability and of 1988 models during their initial year of availability. Data are presented for the high-theft car lines covered by the parts-marking provision of the Act. For comparison, data for cars not designated as high theft and therefore not subject to the parts-marking provisions of the law are also included. In addition to the overall theft results, data are presented for vehicles garaged in large metropolitan areas and vehicles garaged outside large metropolitan areas. This report is based on comprehensive coverage and theft loss data supplied by 13 insurers: Aetna, Allstate, Fireman's Fund, GEICO, Kemper, Liberty Mutual, Nationwide, Prudential, Safeco, Sentry, State Farm, Travelers, and USAA.

It should be noted that the results presented in this report include the complete spectrum of theft losses occurring under comprehensive coverage, ranging from the theft of items from the vehicle to the theft of the vehicle itself.

It is intended that the dissemination of this and other HLDI reports will contribute to research into ways of reducing crash damage, crash injuries, and theft losses, and that it will also inform the public about differences in the loss experience produced by different kinds of vehicles.

RESULTS AND DISCUSSION

Overall Results

Table 1 presents data on theft claim frequencies (per 1,000 insured vehicle years), average loss payments per claim, average loss payments per insured vehicle year, and vehicle years of exposure for 1986-88 models by year of availability. The car lines with parts marking are listed in Appendix A-1. The cars without parts marking are those car lines not defined as high-theft by NHTSA and that had no major redesign during the 1986-88 model years. Car lines that underwent major redesigns were excluded, as HLDI data have previously identified significant changes in the frequency of theft claims for newly redesigned models.

Theft Claim Frequency

During their first year of availability both the 1987 car lines with parts marking and those not subject to parts marking experienced similar declines in theft claim frequencies compared to the 1986 models in their first year of availability. However, during the second year, the parts-marked car lines registered much larger declines than did the nonmarked cars. For the first year of availability for the 1988 models compared to the 1986 models, the parts-marked car lines registered a decline of almost 30 percent in theft claim frequencies compared to an 11 percent decline for the nonmarked car lines. Furthermore, the theft claim frequency of the 1988 model parts-marked car lines was virtually the same as for nonmarked lines.

Table 1

Overall Theft Results: 1986-88 Vehicle Series Subject to Parts Marking and Not Subject to Parts Marking By Year of Availability

	Cars Without Parts Marking			Cars With Parts Marking*		
	1986	1987	1988	1986	1987	1988
Claim Frequency						
Year 1	10.0	9.1	8.9	12.6	11.5	9.0
Year 2	9.6	9.2		12.4	10.7	
Average Loss Payment ($)						
Year 1	1,568	1,535	1,626	2,760	2,821	3,057
Year 2	1,502	1,543		2,495	2,796	
Average Loss ($) Payment Per Insured Vehicle Year						
Year 1	16	14	14	35	32	27
Year 2	14	14		31	30	
Vehicle Years Of Exposure (in 1,000s)						
Year 1	909	986	1,066	451	427	600
Year 2	2,334	2,810		1,273	1,347	

* Parts-marking began with the 1987 models.

Results are standardized to the following distribution: Theft coverage with no deductible amount, 5 percent youthful operators and 50 percent no-youthful operators; for coverage with a deductible amount, 5 percent youthful operators and 40 percent no-youthful operators.

Average Loss Payment Per Claim

Although theft claims for the parts-marked car lines were not as frequent as for their earlier unmarked counterparts, the size of those claims increased dramatically. Parts-marked 1987 car lines experienced an increase in average loss payments per claim during their first year of availability at the same time as the nonmarked car lines registered a slight decrease. For the 1988 models compared to the 1986 models, both groups registered increases in the average loss payment per claim, with the marked car lines up over 10 percent and the nonmarked car lines up by less than 4 percent. For 1988 models in their first year, the average loss payment per claim for parts-marked cars was almost 90 percent larger than the average for nonmarked cars. Comparing the second year of availability for 1987 models with the 1986 models second year also shows a much larger increase in the average loss payment per claim for parts-marked cars than for nonmarked car lines.

Average Loss Payment Per Insured Vehicle Year

The average loss payment per insured vehicle year reflects both the frequency of theft claims and the average loss payment per claim. In their first year of availability both parts-marked and nonmarked 1987 models registered declines in their average loss payment per insured vehicle year. The marked car lines continued to experience a decline in average loss payment per insured vehicle year in the first year of the 1988 models but the non-marked car lines were unchanged. Similarly, during the second year of the 1987 models, the parts-marked lines registered a small decline compared to the second year of 1986 models but the nonmarked car lines were unchanged. Overall, the parts-marked car lines registered larger declines in average loss payment per insured vehicle year than did the nonmarked lines.

Theft Claim Distribution and Frequencies by Size of Claim

Table 2 gives the distribution of theft claims by size of claim for the nonmarked and parts-marked groups for 1986-88 model years. Theft claims less than $2,000 changed very little for either group from the 1986 to 1988 models. The nonmarked group had a significantly greater percentage of claims falling into this category, however. For the nonmarked vehicles only, one claim in seven was larger than $2,000; for the parts marked group about one claim in four was above $2,000. The middle category, claims in the $2,000 to $10,000 range, declined in relative size for both groups from 1986 to 1988. The highest category, claims greater than $10,000, was significantly larger for the parts-marked vehicles. Both groups experienced about the same one-third increase in the relative size of the large theft loss bracket between 1986 and 1988.

Claim size distributions fail to take into account the changing number of claims and vehicle years of exposure. To address this, Table 2 also contains theft claim frequencies by size of claim using the same three claim size groups described above. To facilitate comparisons, the results were indexed to 1986 equal to 100. Claim frequencies for lower cost claims declined by one-quarter for parts- marked cars between 1986 and 1988 but increased by 4 percent for the nonmarked group. The mid-range size claim frequencies ($2,000-$10,000) declined for both groups but more so for the parts-marked vehicles. Cars without parts marking experienced a large increase in high cost theft frequencies, but there was no change for the cars with parts marking.

Parts-marked cars registered declines in theft claim frequencies for all theft claims less than $10,000 and an unchanged frequency for claims greater than $10,000. Conversely, the nonmarked group had little change in the lower cost claim frequency, a decline in the mid-range, and a large increase in the frequency of large claims.

Losses by Rural-Urban Classification

A previous HLDI report (A-29) found that the theft experience for 1985-87 model cars was highly dependent on vehicle garaging location. That report used a U.S. Department of Agriculture population density classification system that placed each county in a rural-urban continuum. In general, as the degree of urbanization increased, so did theft claim frequency and average loss payment per insured vehicle year.

Table 2
Theft Claim Distribution and Claim Frequency Index By Size of Claim: 1986-88 Vehicle Series

	Cars Without Parts Marking			Cars With Parts Marking*		
	Size of Claim			Size of Claim		
Model Year	<$2,000	$2,000-10,0000	>$10,000	<$2,000	$2,000-10,0000	>$10,000
Percent Distribution of Theft Claims						
1986	(84.4)	(11.0)	(4.7)	(73.6)	(16.1)	(10.4)
1987	(85.4)	(9.0)	(5.6)	(73.1)	(14.5)	(12.4)
1988	(86.6)	(7.4)	(6.1)	(74.5)	(11.6)	(13.8)
Theft Claim Frequencies						
1986	7.86	1.02	0.44	8.84	1.92	1.25
1987	8.23	0.87	0.54	8.05	1.60	1.37
1988	8.17	0.70	0.57	6.70	1.05	1.24
Theft Claim Frequency Index (1986 = 100)						
1986	100	100	100	100	100	100
1987	105	85	123	91	83	109
1988	104	69	132	76	54	100

* Parts-marking began with the 1987 models.

In Table 3, the same classification scheme was used to present theft losses relative to parts-marked vehicles in the areas most affected by automobile thefts, that is high density urban areas with more than 1,000,000 population. (See Appendix C for definitions and codes; areas define as "0" or "1" are termed metropolitan areas in this study.) These large metropolitan areas account for a little over one-half of the overall exposure. Table 4 presents similar theft loss data for the remainder of the United States, that is the counties not contained in large metropolitan areas (codes 2-9 in Appendix C). It should be noted that the HLDI data base assigns vehicles geographically to garaging location and not to the location where the theft loss was incurred. The exposure results presented in Tables 3 and 4 indicate that a slightly higher percentage of the cars with parts marking than of the nonmarked cars are garaged in the large metropolitan areas.

Vehicles In Large Metropolitan Areas

Theft Claim Frequency

As shown in Table 3, theft claim frequencies for both parts-marked and nonmarked car lines were significantly higher in the large metropolitan areas than for the nation overall. For the first year of 1987 model availability in the large metropolitan areas, theft claim frequencies for parts-marked vehicles declined by more than 16 percent and nonmarked vehicles registered a 14 percent drop. Both declines were substantially larger than the overall declines noted earlier. In the second year of 1987 model availability, the parts-marked cars again posted a sharp decline in contrast to a marginal decrease in the nonmarked lines. For the first year of availability of the 1988 models, the parts-marked car lines' claim frequency was one-third lower than the 1986 models, which is a sharp contrast to the 3 percent decline in claim frequencies experienced by the nonmarked car lines. For the 1988 models, parts-marked lines have car theft claim frequencies substantially below the nonmarked cars. This is a dramatic reversal for the lines designated as high theft in 1986.

Average Loss Payment per Claim

The overall trends in average loss payment per claim for large metropolitan areas were similar to those for the nation as a whole but at much higher levels of loss. The average loss payment per claim for nonmarked cars in both first and second years of availability was little changed. However the parts-marked cars' average loss payment per claim increased

Table 3

Theft Results for Vehicles in Large Metropolitan Areas: 1986-88 Vehicle Series Subject to Parts Marking and Not Subject to Parts Marking By Year of Availability

	Cars Without Parts Marking			Cars With Parts Marking*		
	1986	1987	1988	1986	1987	1988
Claim Frequency						
Year 1	16.3	14.0	15.8	19.4	16.2	13.1
Year 2	15.6	15.3		18.6	16.0	
Average Loss Payment ($)						
Year 1	1,772	1,738	1,780	3,096	2,881	4,019
Year 2	1,753	1,813		2,985	3,515	
Average Loss Payment Per Insured Vehicle Year ($)						
Year 1	29	24	28	60	47	53
Year 2	27	28		55	56	
Percent of Total Exposure						
Year 1	51.9	53.5	51.9	55.2	56.6	54.3
Year 2	51.3	51.6		53.8	54.2	

* Parts-marking began with the 1987 models.

Results are standard to the following distribution: Theft coverage with no deductible amount, 5 percent youthful operators and 50 percent no-youthful operators; for coverage with a deductible amount, 5 percent youthful operators and 40 percent no-youthful operators.

Table 4
Theft Results for Vehicles Outside Large Metropolitan Areas: 1986-88 Vehicle Series Subject to Parts Marking and Not Subject to Parts Marking By Year of Availability

	Cars Without Parts Marking			Cars With Parts Marking*		
	1986	1987	1988	1986	1987	1988
Claim Frequency						
Year 1	7.0	6.7	7.3	8.8	8.4	8.1
Year 2	7.3	7.6		9.5	9.1	
Average Loss Payment ($)						
Year 1	1,278	1,194	1,630	2,406	2,274	2,308
Year 2	1,252	1,272		2,265	2,504	
Average Loss Payment Per Insured Vehicle Year ($)						
Year 1	9	8	12	21	19	19
Year 2	9	10		22	23	
Percent of Total Exposure						
Year 1	48.1	46.5	48.1	44.8	43.4	45.7
Year 2	48.7	48.4		46.2	45.8	

* Parts-marking began with 1987 models.

Results are standard to the following distribution: Theft coverage with no deductible amount, 5 percent youthful operators and 50 percent no-youthful operators; for coverage with a deductible amount, 5 percent youthful operators and 40 percent no-youthful operators.

substantially over the period. For the first year of availability, the average loss payment per claim increased by almost one-third between 1986 and 1988 models. Similarly, in the second year of availability for the 1987 models as compared to the second year for the 1986 models there was an increase of about 18 percent.

Average Loss Payment per Insured Vehicle Year

Average loss payments per insured vehicle year for the large metropolitan areas were approximately double the levels registered for the entire nation for both marked and nonmarked lines. As was the case for the country as a whole, average loss payments per insured vehicle year for both groups declined during the first year of 1987 model availability. During the second year, both groups registered slight increases. The 1988 models' average loss payment per insured vehicle year for parts-marked vehicles was about 12 percent lower than for the 1986 models, but there was virtually no change for the nonmarked cars.

Vehicles Outside Large Metropolitan Areas

Theft Claim Frequency

The overall frequency of theft claims shown in Table 4 for the counties not contained in metropolitan areas of one million or more population was roughly one-half that of the urban areas. The pattern of substantial declines in theft claim frequencies for parts-marked vehicles found in the large urban areas was repeated in the balance of the nation as well. Frequencies declined for both groups of cars in the first year of 1987 model availability. In the second year of availability, the marked car lines had lower claim frequencies and the nonmarked group registered increased claim frequencies. The 1988 models of parts-marked cars experienced an eight percent decline compared to the 1986 models, but the nonmarked group registered a four percent increase in claim frequencies.

Average Loss Payment Per Claim

The average loss payment per claim for the nonurban areas was about three-fourths that reported in the large metropolitan areas. For the 1987 models in their first year both car groups experienced a decline in average loss payments per claim. However, in their second year of availability, the parts-marked car lines had more than a 10 percent increase as compared to a 2 percent increase for the nonmarked group. For the 1988 models as compared to the 1986 models, the nonmarked car lines' average loss payment per claim increased by 28 percent and the parts-marked group declined by 4 percent.

Average Loss Payment per Insured Vehicle Year

For the counties not in large metropolitan areas, average loss payments per insured vehicle year were about one-third the levels recorded in the large metropolitan counties and trends were similar. Both parts-marked and nonmarked 1987 models initially recorded declines followed in the second year of availability with increased average loss payments per insured vehicle year. For the 1988 models compared to the 1986 models, there was a 33 percent increase for the nonmarked group and a 10 percent decline for the parts-marked lines. The large change in the nonmarked group was caused by increases in both theft claim frequency and average loss payment per claim.

Effect of Deductible Amounts

The comprehensive portion of automobile insurance covering theft losses is typically available with and without a deductible. Table 5 presents the percentage of total HLDI exposure with a comprehensive coverage deductible and the percentage with no deductible. A major shift over time in either the parts-marked car lines or the nonmarked vehicles from one deductible category to the other could influence both the frequency of theft claims and the average loss payment per theft claim. Although, as shown in Table 5, no large shifts have taken place, there is a trend toward increasing percentages of deductible exposure evidenced in both groups. This change has taken place at about the same rate for both groups and therefore is unlikely to affect comparisons of parts-marked and nonmarked car lines. The percentage of exposure with a comprehensive deductible is essentially the same for both parts-marked and nonmarked groups.

Table 5

1986-88 Vehicle Series Subject to Parts Marking and Not Subject to Parts Marking; Percent of Exposure By Deductible Category

	Cars Without Parts Marking		Cars With Parts Marking	
Year	**No Deductible**	**With Deductible**	**No Deductible**	**With Deductible**
1988	37%	63%	36%	64%
1987	39	61	38	62
1986	41	59	38	62

Parts-marking began with the 1987 models.

Appendix A-1

Car Lines Complying With Parts Marking Rule

Manufacturer	Series
BMW	3-Series, 5-Series, 6-Series, and 7-Series
Chrysler Corp.	Chrysler Executive Sedan/Limousine, Chrysler Fifth Avenue/Newport, Chrysler Laser, Chrysler LeBaron/Town& Country, Chrysler LeBaron GTS, Dodge Aries, Dodge Daytona, Dodge Diplomat, Dodge Lancer, Doge 600, Plymouth Caravelle, Plymouth Gran Fury, Plymouth Reliant, and Q Car.
Ferrari	Mondial 8, 308, and 328
Ford Motor Co.	Ford Mustang, Ford Thunderbird, Mercury Capri, Mercury Cougar, Lincoln Continental, Lincoln Mark, Lincoln Town Car, Merkur Scorpio, and Merkur XR4Ti
General Motors	Buick Electra, Buick LeSabre, Buick Riviera, Cadillac DeVille, Cadillac Eldorado, Cadillac Seville, Chevrolet Camaro, Chevrolet Nova, Oldsmobile Delta 88, Oldsmobile 98, Oldsmobile Toronado, Pontiac Bonneville, Pontiac Fiero, and Pontiac Firebird.
Honda	Acura Legend
Jaguar	XJ, XJ-6, and XJ-40
Maserati	Biturbo, and Quattroporte
Mazda	GLC, and 626
Mercedes-Benz	190 D/E, 260 E 300 D/E, 300 TD, 300 SDL, 380 SEC/500 SEC, 380 SEL/500 SEL, 380 SL, 420 SEL, 560 SEL, 560 SEC, 560 SL
Mitsubishi	Cordia and Tredia
Porsche	911 and 928
Reliant	SSI
Saab	900 and 9000
Subaru	XT
Toyota	Camry, Celica, Corolla/Corolla Sport, MR2, and Starlet
Volkswagen	Audi Quattro, Volkswagen Cabriolet, Volkswagen Rabbit, and Volkswagen Scirocco.

Appendix A-2

High-Theft Car Lines Exempt from Parts-Marking for 1987 Models

Manufacturer	Series
Alfa Romeo	Milano
Austin Rover	Sterling
Chrysler	Conquest
Cadillac	Allante
Chevrolet	Corvette
Isuzu	Impulse
Mazda	RX-7
Mitsubishi	Galant, Starion
Nissan	Maxima, 300ZX
Porsche	924S
Toyota	Celica Supra, Cressida
Volkswagen	Audi 5000S

Note: Car lines as designated by NHTSA in 51 FR 42577, November 25, 1986.

Appendix B

Definitions

Average Loss Payment per Claim -- The total of all loss payments made for the claims for a group of vehicles, divided by the number of claims paid.

Average Loss Payment per Insured Vehicle Year -- For a group of vehicles, the product of Claim Frequency and Average Loss Payment per Claim, expressed as dollars per insured vehicles, the product of Claim Frequency and Average Loss payment per Claim, expressed as dollars per insured vehicle year. *It should be noted that this definition differs from the commonly used insurance term, pure premium, but yields similar results.*

Claim Frequency -- The number of claims for a group of vehicles, divided by the exposure for that group.

Deductible Amount -- That portion of the theft loss borne by the policyholder.

Exposure -- The time interval an individual vehicle is insured. Exposure for a group of vehicles is expressed in units of insured vehicle years.

Loss Payment -- That portion of the theft loss borne by the insurer; in general, the total theft loss minus the deductible amount.

Operator Age Group -- The factor which distinguishes those vehicles whose rated driver is youthful from those vehicles whose rated driver is not youthful *(see Youthful Operator).*

Rated Driver -- The driver who, for insurance purposes, is considered to represent the greatest loss potential for the insured vehicle.

Theft Coverages -- The coverage under which people insure their own car against loss caused by partial or total theft.

Vehicle Series -- A name denoting a family of vehicles, within a make, with the same wheelbase and a degree of commonality in construction such as body, chassis, etc.

Youthful Operator -- For the purposes of this report, all males (married or single) under 25 years of age and all unmarried females under 25 years of age.

Appendix C

U.S. Department of Agriculture
Rural-Urban Continuum Classification System

Code	
	Metropolitan Counties
0	Central counties of metropolitan areas of 1 million population or more
1	Fringe counties of metropolitan areas of 1 million population or more
2	Counties in metropolitan areas of 250,000 to 1 million population
3	Counties in metropolitan areas of less than 250,000 population
	Nonmetropolitan Counties
4	Urban population of 20,000 or more, adjacent to metropolitan area
5	Urban population of 20,000 or more, not adjacent to a metropolitan area
6	Urban population of less than 20,000, adjacent to a metropolitan area
7	Urban population of less than 20,000, not adjacent to a metropolitan area
8	Completely rural, adjacent to a metropolitan area
9	Completely rural, not adjacent to a metropolitan area

Note: Metropolitan status is that announced by the Office of Management and Budget in June 1983, when the current population criteria were first applied to results of the 1980 Census. Adjacency was determined by the physical boundary adjacency and a finding that at least 2 percent of the employed labor force in the nonmetropolitan county commuted to metropolitan central counties.

Prepared in Economic Development Division, Economic Research Service, USDA.

Selected Publications

R88-2 *Insurance Collision Report, Passenger Cars, Vans, Pickups, and Utility Vehicles, 1988 Models During Their First Year, 1987 Models During their First Two years, 1986 Models During Their First Three Years*, December 1988.

R89-1 *Insurance Collision Report, Initial Results for 1989 Automobiles*, August 1989.

I88-1 *Insurance Injury Report, Passenger Cars, Vans, Pickups, and Utility Vehicles; 1986-1988 Models*, September 1989.

T88-1 *Insurance Theft Report; Passenger Cars, Vans, Pickups, and Utility Vehicles: 1988 Models During Their First Year, 1987 Models During Their First Two Years, 1986 Models During Their First Three Years*, May 1989.

A-5 *Automobile Insurance Losses, Collision Coverages; Relationships Between Losses and Vehicle Body Style, 1974 and 1975 Models*, December 1975.

A-7 *Automobile Insurance Losses, Collision Coverages; Annual Increases and Seasonal Variations 1972, 1973, 1974 and 1975 Models*, June 1976.

A-9 *Automobile Insurance Losses, Collision Coverage; A Comparison of Collision Claim Size Distributions for 1974-76 Models*, November 1977.

A-11 *Automobile Insurance Losses, Collision Coverage; The Consistency of the Loss Experience of Specific Vehicles Produced in Several Years, 1975 to 1978 Models*, June 1979.

A-12 *Automobile Insurance Losses, Collision Coverage; An Assessment of the Effects of the Federal Safety Bumper Standard on the Losses for 1972 Through 1978 Models*, June 1980.

A-13 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverage; The Effects of Car Size on Crash Losses, 1977-1980 Models*, May 1981.

A-14 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverage; Comparisons of the Loss Experience of Two- and Four-Door Cars, 1978, 1979, and 1980 Models*, May 1981.

A-16 *Automobile Insurance Losses, Collision Coverages; The Frequency of Claims Involving Salvage; Subcompact and Compact Cars; 1980 Models*, January 1982.

A-17 *Insurance Losses, Comprehensive Coverage; Non-Crash Fire Losses; 1979-1980 Models*, February 1982.

A-18 *Insurance Losses, Theft Coverage; The Distribution of Theft Loss Payment Amounts; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1981 Models During Their First Year, 1980 Models During Their First Two Years, 1979 Models During Their First Three Years*, June 1982.

A-19 *Insurance Losses, Theft Coverages; A Comparison of the Theft Loss Experience of General Motors Passenger Cars With and Without Factory-Installed Theft Deterrent Systems; 1980-1981 Models*, January 1983.

A-20 *Insurance Losses, Collision Coverages, A Comparison of the Collision Loss Experience of Subaru Models with 5 and 2.5 MPH Bumpers*, April 1983.

A-21 *Insurance Losses, Personal Injury Protection Coverages, Injury Claim Frequencies for Volkswagen Rabbits with Automatic and Manual Seat Belts, 1981, and 1982 Models*, April 1984.

A-22 *Insurance Losses, Collision Coverages, An Analysis of Salvage Credits, 1977 Through 1982 Model Year Cars*, July 1984.

A-23 *Injury and Collision Losses by Engine Option, Selected 1983 Models*, October 1985.

A-24 *Comparison of the Insurance Loss Experience of Unibody and Frame Construction Cars After a Collision Repair, 1981-82 Models*, October 1985.

A-25 *Relationships Between Losses and Vehicle Density, 1982-84 Models*, October 1985.

A-26 *Consistency of Model Year Injury Claim Frequency Results for Selected 1981-1983 Models*, May 1986.

A-27 *A Preliminary Evaluation of New York and New Jersey Insurance Injury Claim Results Before and After Enactment of Mandatory Seat Belt Legislation; 1983-85 Models*, May 1986.

A-28 *Insurance Injury Loss Experience in Eight States with Seat Belt Laws, 1983-86 Models*, July 1988.

A-29 *Insurance Losses Based on Garaging Location, 1985-87 Models*, June 1988.

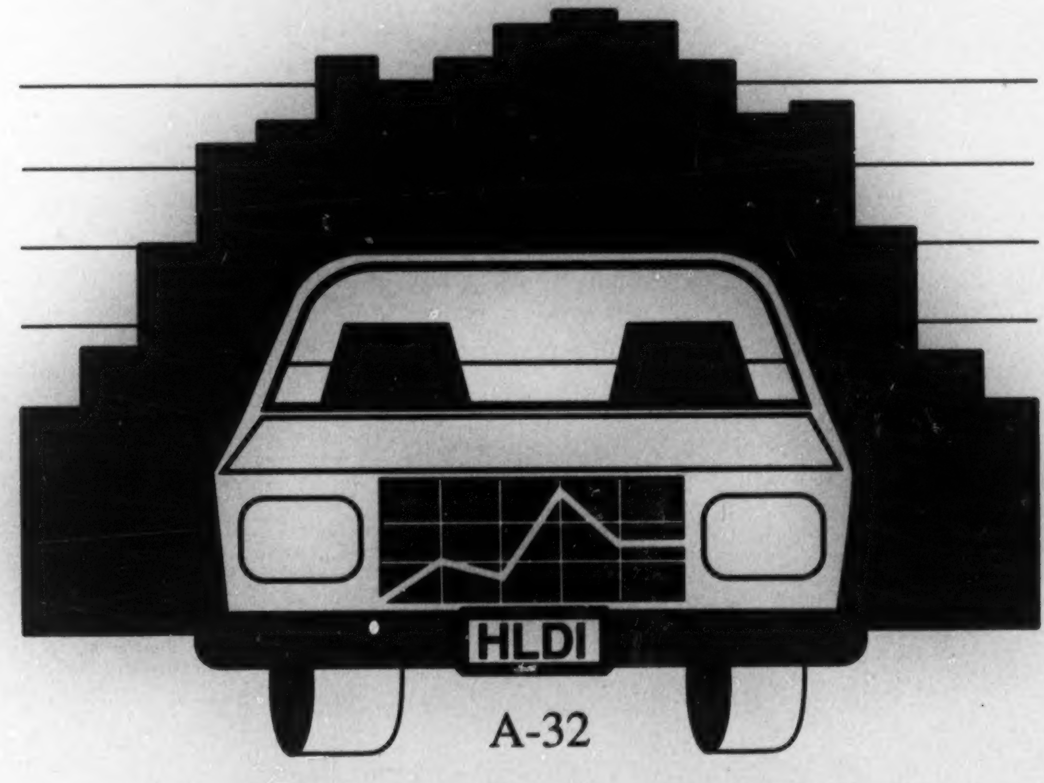
A-30 *Automobile Insurance Losses, A Comparison of California and National Results*, May 1988.

Sponsoring Companies

Aetna Casualty & Surety Company of America Aetna Casualty & Surety Company of Illinois Aetna Casualty and Surety Company AgSecurity Insurance Company Alaska Pacific Assurance Company Alfa Mutual General Insurance Company Alfa Mutual Insurance Company Alliance Assurance Company Ltd. Allied Insurance Company Allstate Indemnity Company Allstate Insurance Company Allstate Property and Casualty Insurance Company American & Foreign Insurance Company American Casualty Company American Economy Insurance Company American Family Mutual Insurance Company American General Fire & Casualty Company American Lloyds Insurance Company American Manufacturers Mutual Insurance Company American Motorist Insurance Company American Protection Insurance Company American States Preferred Insurance Company American States Insurance Company American States Insurance Company of Texas Amica Mutual Insurance Company Assurance Company of America Athena Assurance Company Atlanta Casualty Company Atlantic Employers Insurance Company Atlas Assurance Company of America Automobile Insurance Company of Hartford Bankers Standard Insurance Company Bituminous Casualty Corporation Bituminous Fire & Marine Insurance Company Boston Old Colony Insurance Company Brotherhood Mutual Insurance Company Buckeye Union Insurance Company CIGNA Fire Underwriters Insurance Company CIGNA Insurance Company of the Midwest CIGNA Insurance Company of Illinois CIGNA Insurance Company of Ohio CIGNA Insurance Company of Texas CIGNA Property and Casualty Insurance Company CIGNA Insurance Company CUMIS Insurance Society Inc. Camden Fire Insurance Association Casualty Insurance Company Century Indemnity Company Charter Oak Fire Insurance Company Chubb Insurance Company of New Jersey Chubb Lloyds Insurance Company of Texas Church Mutual Insurance Company Classic Insurance Company Colonial Insurance Company Columbia Casualty Company Commercial Insurance Company of Newark Concord General Mutual Insurance Company Continental Casualty Company Continental Insurance Company Continental Insurance Company of New Jersey Cotton States Mutual Insurance Company Country Casualty Insurance Company Country Mutual Insurance Company Country Preferred Insurance Company Countrywide Insurance Company Covenant Insurance Company Criterion Casualty Company Economy Fire and Casualty Company Empire Insurance Company Employers Insurance of Wausau Employers Mutual Casualty Company Erie Insurance Exchange Farm Bureau Mutual Insurance Company Inc. of Kansas Farm Bureau Mutual Insurance Company of Idaho Farm Bureau Mutual Insurance Company of Iowa Farm Bureau Mutual Insurance Company of Nebraska Farmers & Merchants Insurance Company Farmers Automobile Association of Pekin Illinois Farmers Insurance Company Inc. Farmers Insurance Company of Arizona Farmers Insurance Company of Idaho Farmers Insurance Company of Oregon Farmers Insurance Company of Washington Farmers Insurance Exchange Farmers Insurance of Columbus Inc. Farmers Mutual Insurance Company of Nebraska Farmers Texas County Mutual Insurance Company Farmington Casualty Company Farmland Mutual Insurance Company Federal Insurance Company Federal Kemper Insurance Company The Fidelity & Casualty Company of New York Fidelity & Guaranty Insurance Company Fidelity & Guaranty Insurance Underwriters Inc. Fidelity and Deposit Company of Maryland Firemen's Insurance Company of Newark First Fire and Casualty Insurance of Hawaii Inc. First Indemnity Insurance of Hawaii Inc. First Insurance Company of Hawaii Ltd. Foundation Reserve Insurance Company Inc. GEICO General Insurance Company GEICO Indemnity Company General Accident Insurance Company of America The Glens Falls Insurance Company Globe Indemnity Company Gothaer Insurance Company Government Employees Insurance Company Great Northern Insurance Company Great West Casualty Company Green Mountain Insurance Company Inc. Grinnell Mutual Reinsurance Company Guaranty National Insurance Company Halcyon Insurance Company Harbor Insurance Company Harleysville Mutual Insurance Company Hartford Accident and Indemnity Company Hartford Casualty Insurance Company Hartford Fire Insurance Company Hartford Insurance Company of Connecticut Hartford Insurance Company of Illinois Hartford Insurance Company of the Midwest Hartford Insurance Company of the Southeast IDS Property Casualty Insurance Company Illinois Employers Insurance of Wausau Illinois Farmers Insurance Company Indemnity Insurance Company of North America Indiana Farmers Mutual Insurance Company Insurance Company of North America John Deere Insurance Company KFB Insurance Company Inc. Kansas City Fire and Marine Insurance Company Kentucky Central Insurance Company League General Insurance Company Liberty Insurance Corporation Liberty Mutual Fire Insurance Company Liberty Mutual Insurance Company Liberty Northwest Insurance Corporation London Assurance Lumbermens Mutual Casualty Company Maine Bonding and Casualty Company Maryland Casualty Company Mayflower Insurance Company Ltd. Merit Insurance Company Metropolitan Property and Liability Insurance Company Michigan Education Employees Mutual Insurance Company Michigan Mutual Insurance Company Mid-Century Insurance Company Mid-Century Insurance Company of Texas Middlesex Mutual Assurance Company Midwest Mutual Insurance Company Montgomery Mutual Insurance Company Motor Club Insurance Association of Nebraska Motor Club of America Insurance Company Motors Insurance Corporation NWNL General Insurance Company National Casualty Company National Continental Insurance Company National Fire Insurance Company of Hartford National General Fire & Casualty Company National General Insurance Company of Missouri National Grange Mutual Insurance Company National Standard Insurance Company National-Ben Franklin Insurance Company of Illinois Nationwide Agribusiness Insurance Company Nationwide General Insurance Company Nationwide Indemnity Insurance Company Nationwide Mutual Fire Insurance Company Nationwide Mutual Insurance Company Nationwide Property and Casualty Insurance Company New York Underwriters Insurance Company Newark Insurance Company Niagara Fire Insurance Company North Carolina Farm Bureau Mutual Insurance Company North Pacific Insurance Company Northbrook Indemnity Company Northbrook National Insurance Company Northbrook Property and Casualty Insurance Company Northern Insurance Company of New York Northwestern Pacific Indemnity Company Nutmeg Insurance Company Oklahoma Farm Bureau Mutual Insurance Company Oregon Automobile Insurance Company Pacific Employers Insurance Company Pacific Indemnity Company Pacific Insurance Company Pacific Insurance Company Ltd. Pekin Insurance Company Pennsylvania General Insurance Company PEMCO Insurance Company Phoenix Insurance Company Potomac Insurance Company of Illinois Preferred Risk Insurance Company Progressive American Insurance Company Progressive Casualty Insurance Company Progressive County Mutual Insurance Company Progressive Gulf Insurance Company Progressive Mutual Insurance Company Progressive Northern Insurance Company Progressive Northwestern Insurance Company Progressive Southeastern Insurance Company Progressive Specialty Insurance Company Prudential Commercial Insurance Company Prudential General Insurance Company Prudential-LMI Commercial Insurance Company Prudential Property and Casualty Insurance Company Public Employees Mutual Insurance Company Puerto Rican-American Insurance Company Ramsey Insurance Company Ranger Insurance Company Royal Indemnity Company Royal Insurance Company of America Royal Milbank Insurance Companies SECURA Insurance Safeguard Insurance Company St. Paul Fire & Marine Insurance Company St. Paul Fire and Casualty Insurance Company St. Paul Guardian Insurance Company St. Paul Indemnity Insurance Company St. Paul Insurance Company St. Paul Insurance Company of Illinois St. Paul Insurance Company of North Dakota St. Paul Lloyds Insurance Company St. Paul Mercury Insurance Company St. Paul Property and Casualty Insurance Company Scottsdale Insurance Company Sea Insurance Company Ltd. Selective Insurance Company of America Selective Insurance Company of the Southeast Selective Way Insurance Company Sentinel Insurance Company Ltd. Shelter General Insurance Company Shelter Mutual Insurance Company Shield Insurance Company Southern Guaranty Insurance Company Southern Heritage Insurance Company Standard Fire Insurance Company State Auto Insurance Company State Farm County Mutual Insurance Company of Texas State Farm Fire and Casualty Company State Farm General Insurance Company State Farm Mutual Automobile Insurance Company Sun Insurance Office Ltd. Texas Employers' Insurance Association Texas Farmers Insurance Company Texas Pacific Indemnity Company Transamerica Indemnity Company Transamerica Insurance Company Transamerica Insurance Company of Michigan Transamerica Insurance Company of Texas Transamerica Insurance Corporation of America Transamerica Premier Insurance Company Transamerica Specialty Insurance Company Transcontinental Insurance Company Transportation Insurance Company Travelers Indemnity Company Travelers Indemnity Company of America Travelers Indemnity Company of Illinois Travelers Indemnity Company of Rhode Island Travelers Insurance Company Truck Insurance Exchange Twin City Fire Insurance Company USAA Casualty Insurance Company United Financial Casualty Insurance Company United Services Automobile Association United States Fidelity and Guaranty Company Utica Mutual Insurance Company Valley Forge Insurance Company Valiant Insurance Company Vigilant Insurance Company Wausau Underwriters Insurance Company Western Casualty & Surety Company

A5200-4.23F

INSURANCE SPECIAL REPORT



A-32

Automobile Theft Losses By Size of Claim and in Selected States

Highway Loss Data Institute

Insurance Special Report
A-32

Automobile Theft Losses By Size of Claim and in Selected States

HIGHWAY
LOSS
DATA
INSTITUTE

Permission to quote from or to reproduce material from this publication is granted when due acknowledgement is made.
Highway Loss Data Institute – 1005 North Glebe Road – Arlington, Virginia 22201
Research Report HLDI A-32; December 1989
Copyright 1989 HLDI

The membership of the Highway Loss Data Institute Board of Directors and the Technical Resource Committee represents insurance companies that are supplying data to HLDI. Financial support for HLDI is provided through the Insurance Institute for Highway Safety, which in turn is supported by most automobile insurers either directly or through their trade associations.

Board of Directors

G.C. Klingman, Chairman
The Travelers Insurance Companies

M. Albaum
Prudential Property and Casualty Insurance Company

H.L. Cohen
Government Employees Insurance Company

J.B. Conners
Liberty Mutual Insurance Company

S.F. Goldberg
United Services Automobile Association

T.A. Hoyt
Nationwide Mutual Insurance Company

R.S. Lawson
Alliance of American Insurers

S.D. Marks
Aetna Life and Casualty

D.F. Snyder
American Insurance Association

W.W. Sorenson
State Farm Mutual Automobile Insurance Company

J.S. Trees
Allstate Insurance Company

T.E. Troxel
National Association of Independent Insurers

B. O'Neill, ex officio
Highway Loss Data Institute

Technical Resource Committee

M. Albaum, Chairman
Prudential Property and Casualty Insurance Company

H.L. Cohen
Government Employees Insurance Company

R.O. Elder
Highway Loss Data Institute

S.F. Goldberg
United Services Automobile Association

T.A. Hoyt
Nationwide Mutual Insurance Company

G.C. Klingman
The Travelers Insurance Companies

S.D. Marks
Aetna Life and Casualty

R.T. Muleski
Liberty Mutual Insurance Company

B. O'Neill
Highway Loss Data Institute

W.W. Sorenson
State Farm Mutual Automobile Insurance Company

J.S. Trees
Allstate Insurance Company

CONTENTS

Summary 1

Introduction 2

Overall Claim Size Distribution 2

Theft Claims Greater than $10,000 4

Theft Claims: $2,001-5,000 4

Theft Claims: $501-2,000 4

Theft Claims Less Than or Equal to $500 7

Appendix Definitions 8

Selected Publications 9

Table 1 Overall Theft Claim Size Distribution; 1987-88 Models 2

Table 2 Vehicles With High Percentages of Theft Claims Greater Than $10,000; 1987-88 Models 3

Table 3 Vehicles With High Percentages of Theft Claims Greater Than $10,000 in Selected States; 1987-88 Models 3

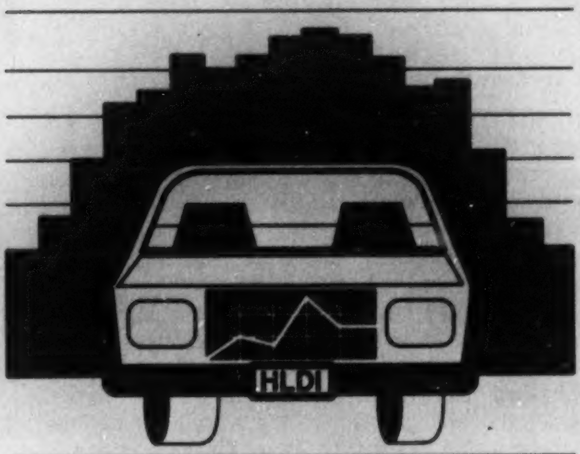
Table 4 Vehicles With High Percentages of $2,001-5,000 Theft Claims; 1987-88 Models 5

Table 5 Vehicles With High Percentages of $2,001-5,000 Theft Claims in Selected States; 1987-88 Models 5

Table 6 Vehicles With High Percentages of $501-2,000 Theft Claims; 1987-88 Models 6

Table 7 Vehicles With High Percentages of $501-2,000 Theft Claims in Selected States; 1987-88 Models 6

Table 8 Vehicles With High Percentages of Theft Claims Less Than or Equal to $500; 1987-88 Models 7



SUMMARY

This Highway Loss Data Institute report summarizes the theft loss experience of 1987 and 1988 model year vehicles by size of claim and in selected states. It focuses on vehicles with abnormally high proportions of their theft claims in one of four specific claim size categories: claims exceeding $10,000, claims in the range $2,001 to $5,000, claims in the range $501 to $2,000, and claims less than or equal to $500.

These claim size categories were chosen for analysis because they represent over 95 percent of all theft claims and because each represents different types of losses. Claims exceeding $10,000 for most vehicles represent the theft of the entire vehicle and are total losses. Claims in the $2,001 to $5,000 range, and also those between $501 and $2,000, are generally for theft of fairly costly components such as radios and other electronic components. Small claims, less than or equal to $500 involve the theft of less costly items such as hubcaps and hood ornaments; however, such claims constitute the majority of all theft claims. The report also describes the high incidence of theft claims in particular states for selected vehicles and claim size categories.

Overall Claim Size Distribution

The following table provides the overall distribution by size of claim for theft claims paid on 1987 and 1988 model year vehicles and the contribution of each category to total theft losses:

Claim Size	Percent of Claims	Percent of Paid Losses
>$10,000	9.2	61.2
$5,001-10,000	4.4	14.4
$2,001-5,000	5.7	7.6
$501-2,000	28.7	11.9
≤$500	52.0	4.9

Claims greater than $10,000 represent less than 10 percent of all theft claims but over 60 percent of all paid losses; over half of the claims are under $500 but they account for less than 5 percent of total theft losses.

Theft Claims Greater Than $10,000 (9.2 Percent of All Claims)

- The Toyota Cressida, Chevrolet Blazer/GMC Jimmy, Chevrolet Monte Carlo, and Mercury Grand Marquis each has more than 35 percent of its theft claims exceeding $10,000.
- These claims occurred disproportionately in Texas for the Mercury Grand Marquis, Ford Thunderbird, and Ford Bronco and in New York for the Toyota Cressida.
- For vehicles listed with high percentages of theft claims exceeding $10,000, the Chevrolet Corvette has by far the highest average loss payment for these claims ($27,367).

Theft Claims $2,001-5,000 (5.7 Percent of All Claims)

- Mercedes-Benz models and the Nissan 300ZX have from approximately 30 to 40 percent of their theft claims between $2,001 and $5,000.
- Texas has over five times its share of $2,001-$5,000 theft claims for the Nissan 300ZX and New York is overrepresented in claims of this size for Mercedes-Benz models.

Theft Claims $501-2,000 (28.7 Percent of all Claims)

- European imports, led by the Volvo 740/760 with nearly two-thirds of its theft claims in the $501-2,000 range, have the highest percentages of theft claims in this category.
- Claims of this size, as well as all theft claims, tend to be concentrated in New York and New Jersey for Audi and Volvo models and in California for Volkswagen models.

Theft Claims Less Than or Equal to $500 (52.0 Percent of All Claims)

- The Plymouth Reliant has the highest percentage (86.2) of its theft claims resulting in payments of less than or equal to $500.
- For vehicles listed with high percentages of theft claims less than or equal to $500, the Cadillac Eldorado/Seville has the lowest average loss payment for these claims.

Introduction

The Highway Loss Data Institute (HLDI) is a nonprofit, public service organization that gathers, processes, analyses, and publishes insurance data concerned with human and economic losses resulting from owning and operating motor vehicles -- especially concerning the ways such losses vary among different kinds of vehicles.

Since 1979 HLDI has been publishing results on the theft loss experience of vehicles insured under comprehensive coverages. The reports published since that time indicate that certain vehicles consistently have larger theft losses than other vehicles and that there are huge variations in overall theft losses among all vehicles. The HLDI theft reports also reveal that some vehicles have extremely high frequencies of theft claims but relatively low average loss payments per claim, indicating the frequent occurrence of partial thefts (e.g., radios or stereo equipment).

This special theft report examines the theft loss experience, under comprehensive coverages, of 1987 and 1988 models through March 1989. The results presented in this report include the complete spectrum of theft losses occurring under comprehensive coverages, ranging from the theft of items from the vehicle to the theft of the vehicle itself. This report examines vehicles with abnormally high proportions of their theft claims in particular claim size categories. In addition, theft data are examined by state, and states with inordinately high theft claims for selected vehicles and claim size categories are highlighted.

The report is based on comprehensive coverage and theft loss data supplied by 13 insurers: Aetna, Allstate, Fireman's Fund, GEICO, Kemper, Liberty Mutual, Nationwide, Prudential, Safeco, Sentry, State Farm, Travelers, and USAA. It is intended that the dissemination of this and other HLDI reports will contribute to research into ways to reduce crash damage, crash injuries, and theft losses, and that it will also inform the public about differences in the loss experiences produced by different kinds of vehicles.

Overall Claim Size Distribution

The overall distribution by size of claim for the 137,333 theft claims paid on 1987 and 1988 models through March 1989 is shown in Table 1. The table also provides the distribution of paid theft losses by claim size category. For the analyses contained in this report, theft claims were grouped into four size categories representing over 95 percent of all types of losses. Large claims exceeding $10,000, which generally are for theft of the entire vehicle, account for over 9 percent of all theft claims and over 60 percent of all paid losses. (Theft claims between $5,001 and $10,000 account for less than 5 percent of all theft claims. No particularly noteworthy results were found for this group of claims.) The second group considered here are claims from $2,001 to $5,000, and are generally for theft of fairly costly components such as radios or other electronics in more expensive cars. They comprise about 6 percent of all theft claims and between 7

Table 1
Overall Theft Claim Size Distribution
1987-88 Models

Claim Size	Number of Claims	Percentage of Claims	Percentage of Paid Losses
≤$500	71,402	52.0	4.9
$501-1,000	24,565	17.9	5.4
$1,001-2,000	14,895	10.8	6.5
$2,001-5,000	7,843	5.7	7.6
$5,001-10,000	6,044	4.4	14.4
≥$10,000	12,584	9.2	61.2
Total	137,333	100.0	100.0

Table 2
Vehicles With High Percentages of Theft Claims Greater Than $10,000
1987-88 Models

Vehicle Series	Total Claims	Claims >$10,000	Percent >$10,000	Average Payment Claims >$10,000
All Vehicles	137,333	12,584	9.2	$15,531
Toyota Cressida	127	55	43.3	18,639
Chevrolet Blazer/GMC Jimmy	354	137	38.7	17,588
Chevrolet Monte Carlo	1,088	413	38.0	14,329
Mercury Grand Marquis	639	235	36.8	16,576
Chevrolet/GMC Suburban	733	232	31.7	18,698
Chevrolet/GMC Pickup	3,790	1,170	30.9	13,614
Ford Thunderbird	605	185	30.6	14,399
Chevrolet Corvette	371	110	29.6	27,367
Ford Bronco	358	106	29.6	18,749
Chevrolet Camaro/Pontiac Firebird	5,106	1,415	27.7	14,908

Table 3
Vehicles With High Percentages of Theft Claims Greater Than $10,000 in Selected States
1987-88 Models

Vehicle Series State	Percent of Exposure	Percent of All Claims	Percent of Claims >$10,000
All Vehicles			
New York	8.5	9.6	18.9
Texas	6.3	11.2	18.0
Mercury Grand Marquis			
Texas	7.2	43.3	77.9
Ford Thunderbird			
Texas	6.1	21.8	45.4
Ford Bronco			
Texas	5.4	17.9	37.7
Toyota Cressida			
New York	8.7	38.6	58.2

and 8 percent of all paid losses. The third group, claims from $501 to $2,000, has also been shown to involve car radio components and are approximately 29 percent of all claims but less than 12 percent of all paid losses. The fourth category, claims less than or equal to $500, which involves theft of less costly items such as hubcaps and hood ornaments, constitutes more than half of all theft claims but only about 5 percent of all paid losses. Theft claims within each of these four size categories are discussed separately in the following sections.

Theft Claims Greater than $10,000

Table 2 lists vehicles with high percentages of theft claims exceeding $10,000. Most of these claims are total losses; either the vehicle is never recovered or it is recovered with such extensive damage or with so many major parts missing that it is declared a total loss. All 1987-88 vehicles combined have an average of less than 10 percent of their theft claims over $10,000, but the vehicles listed in Table 2, as a group, have more than 30 percent over $10,000. The Toyota Cressida, with 43.3 percent, leads the list. The remainder of the vehicles are all General Motors (GM) Corporation and Ford Motor Company products, including pickups and intermediate and large utility vehicles. The list also includes GM's sporty Corvette, Camaro, and Firebird and Ford's Thunderbird.

Table 2 also lists the average payment per theft claim for claims greater than $10,000. The Chevrolet Corvette has by far the highest theft payment per claim for these claims ($27,367).

Some of the vehicles listed in Table 2 with very high proportions of their claims greater than $10,000 also have peculiar geographic distributions of these claims. Table 3 presents the results with the greatest disparity between state vehicle exposure and claims greater than $10,000 and shows, for example, that although only about 7 percent of all Mercury Grand Marquises in the HLDI data base are insured in Texas, the state accounts for over 40 percent of all theft claims for this vehicle and for nearly 80 percent of the large claims. These figures indicate that Texas has more than 10 times its share of these large losses for the Mercury Grand Marquis. Texas also has a disproportionate share of high theft losses for the Ford Thunderbird and Ford Bronco. Nearly 40 percent of all theft claims and nearly 60 percent of claims over $10,0000 for Toyota Cressidas are filed in New York state, which accounts for only 8.7 percent of the HLDI exposure for this vehicle.

Theft Claims: $2,001-5,000

For all theft claims for 1987-88 models, 5.7 percent are in the $2,001-$5,000 range. The vehicles listed in Table 4 have from nearly 30 to 40 percent of their claim payments in this range. Additional claim analysis has not been performed, so the nature of these claims, the items or equipment being stolen, has not been ascertained. They may represent thefts of electronic components and result in high claim payments because the cars involved are very expensive. Leading the list is the Mercedes-Benz SDL/SEL series with nearly 40 percent of its theft claims involving payments of between $2,001 and $5,000. Two other Mercedes-Benz models and the Nissan 300ZX also have high percentages of theft claims in this range.

A state-by-state examination of these claims revealed that some states have from four to five times their share of claims, based on exposure (Table 5). Texas has over five times its share of $2,001-$5,000 theft claims for the Nissan 300ZX, and New York is overrepresented in claims of this size for Mercedes-Benz models. Approximately one of every eight Mercedes-Benz models is insured in New York, but more than half of all claims between $2,001 and $5,000 for these models are filed and paid in New York.

Theft Claims: $501-2,000

Regular HLDI reports have for some time featured lists of vehicles with the highest theft claim frequencies. Prominent on these lists have been most Volkswagen models and many other European designed cars. Analysis of these claims has shown that the theft of car radio components is a major cause of the high theft claim frequencies for these cars. Theft claims for replacing stolen radios in these cars typically involve payments of between $1,000 and $1,500.

Table 6 lists vehicles with disproportionate numbers of their claims in the $501-$2,000 range. Fifty-five to sixty-five percent of theft claims for these vehicles are in this range, whereas, for all 1987-88 vehicles, the proportion is 28.7 percent. All 10 vehicles listed are European designed cars, with all Volkswagen models, except the Fox, included. The Volvo 740/760 series leads the list with nearly two-thirds of its claims in the $501-$2,000 range.

Table 4
Vehicles With High Percentages of $2,001-5,000 Theft Claims 1987-88 Models

Vehicle Series	Total Claims	Claims $2,001-$5,000	Percent $2,001-$5,000
All Vehicles	137,333	7,843	5.7
Mercedes-Benz SDL/SEL Series	411	164	39.9
Mercedes-Benz 260E/300D/E	519	177	34.1
Mercedes-Benz 190 D/E	375	116	30.9
Nissan 300ZX	445	130	29.2

Table 5
Vehicles With High Percentages of $2,001-5,000 Theft Claims in Selected States 1987-88 Models

Vehicle Series State	Percent of Exposure	Percent of All Claims	Percent of Claims $2,001-$5,000
All Vehicles			
New York	8.5	9.6	15.7
Texas	6.3	11.2	11.0
Nissan 300ZX			
Texas	7.9	26.3	41.5
Mercedes-Benz 260/300 Series			
New York	12.7	33.1	56.5
Mercedes-Benz SDL/SEL Series			
New York	14.2	41.4	55.2
Mercedes-Benz 190D/E			
New York	12.4	36.0	45.7

Table 6
Vehicles With High Percentages of $501-2,000 Theft Claims 1987-88 Models

Vehicle Series	Total Claims	Claims $501-$2,000	Percent $501-$2,000
All Vehicles	**137,333**	**39,460**	**28.7**
Volvo 740/760	707	465	65.8
Peugeot 505	103	67	65.0
Porsche 924/944	703	451	64.2
Audi 4000/5000	540	333	61.7
Alfa Romeo Spider/Milano	192	117	60.9
Saab 900/9000	1,233	728	59.0
Volkswagen Jetta	4,542	2,584	56.9
Volkswagen Golf/GTI/Cabriolet	3,575	2,010	56.2
Volkswagen Quantum	107	59	55.1
Volkswagen Scirocco	412	227	55.1

Table 7
Vehicles With High Percentages of $501-2,000 Theft Claims In Selected States 1987-88 Models

Vehicle Series State	Percent of Exposure	Percent of All Claims	Percent of Claims $501-$2,000
All Vehicles			
Califorina	**9.6**	**14.4**	**20.0**
New Jersey	**3.0**	**2.4**	**3.2**
New York	**8.5**	**9.6**	**11.4**
Audi 4000/5000			
New Jersey	4.9	15.9	21.0
New York	11.9	30.4	31.8
Volvo 740/760			
New York	11.9	37.2	46.2
Volkswagen Jetta			
California	13.0	31.0	31.0
Volkswagen Golf/GTI/Cabriolet			
California	15.1	32.6	35.0

A geographic analysis of these claims indicates regional differences among the cars with disproportionate numbers of claims in the $501-$2,000 range (see Table 7): For example, 21 percent of claims in this category for Audi 4000 and 5000 models are filed in New Jersey and 32 percent in New York, although the exposure for these cars in these states is considerably less. More than 30 percent of claims in this range for Volkswagen's Jetta, Golf, GTI, and Cabriolet are paid in California, which is more than double their share based on exposure. Table 7 shows also that the differences between the percentage of all theft claims and that for claims in the $501-2,000 range are small, indicating that the geographic patterns apply to all thefts, not just those in the $501-2,000 category.

Theft Claims Less Than or Equal to $500

At the low end of the theft spectrum are the small claims of less than $500 that involve the theft of lower cost items such as hubcaps and hood ornaments. As was shown in Table 1, small theft claims of less than $500 constitute the majority of all theft claims. Some vehicles, however, have significantly higher percentages of claims in this range. Table 8 lists these vehicles and also the average payment per claim for claims less than or equal to $500. The Plymouth Reliant has the highest percentage (86.2) of its theft claims in this range. One interesting entry on this list is the Cadillac Eldorado/Seville; although these are relatively expensive models, nearly 80 percent of their theft claims had payments less than or equal to $500. It is believed that the Cadillac hood emblem is a favorite target of these thefts. Among all the vehicles listed in Table 8, the Cadillac Eldorado/Seville has the lowest average payment per theft claim for claims less than or equal to $500.

Table 8
Vehicles With High Percentages of
Theft Claims Less Than or Equal to $500
1987-88 Models

Vehicle Series	Total Claims	Claims ≤$500	Percent ≤$500	Average Payment Claims ≤$500
All Vehicles	**137,333**	**71,402**	**52.0**	**$219**
Plymouth Reliant	370	319	86.2	123
Chevrolet/GMC Extended Cab Pickup	223	179	80.3	200
Dodge Caravan/Plymouth Voyager	1,283	1,029	80.2	151
Dodge Pickup	557	442	79.4	123
Mercury Topaz	309	245	79.3	133
Cadillac Eldorado/Seville	586	464	79.2	122
Ford Taurus	1,292	1,010	78.2	147
Plymouth Sundance	506	389	76.9	146
Ford Aerostar	789	600	76.0	187

Appendix Definitions

Average Loss Payment per Claim - The total of all loss payments made for the claims for a group of vehicles, divided by the number of claims paid.

Average Loss Payment per Insured Vehicle Year - For a group of vehicles, the product of Claim Frequency and Average Loss Payment per Claim, expressed as dollars per insured vehicle year. *It should be noted that this definition differs from the commonly used insurance term, pure premium, but yields similar results.*

Claim Frequency - The number of claims for a group of vehicles, divided by the exposure for that group.

Deductible Amount - That portion of the comprehensive loss borne by the policyholder.

Exposure - The time interval an individual vehicle is insured. Exposure for a group of vehicles is expressed in units of insured vehicle years.

Loss Payment - That portion of the comprehensive loss borne by the insurer; in general, the total comprehensive loss minus the deductible amount.

Theft Coverages - The coverage under which people insure their own car against loss caused by partial or total theft.

Vehicle Classifications - There are four vehicle classes, defined as follows:

1. **Passenger Vehicles** - There are four major body style groupings of passenger vehicles -- regular two-door models, regular four-door models, station wagons and passenger vans, and sports and specialty models. Sports and specialty models include two-seater cars, all convertibles, all midsize and large cars with two or fewer designated rear seating positions, and all luxury cars. Each body style group is further divided into size class subgroups based on wheelbase (rounded to nearest inch) defined as follows:

   Small - Vehicles with wheelbases less than or equal to 99 inches.

   Midsize - Vehicles with wheelbases greater than 99 inches and less than or equal to 109 inches.

   Large - Vehicles with wheelbases greater than 109 inches.

2. **Vans** - Fully enclosed vehicles with either no hood or a very short hood, in which the engine is placed at least 50 percent behind the windshield. The driver's position is usually well forward, nearly beside the engine, usually within the forward 25 percent of the wheelbase. These vehicles are designed for cargo access door and rear door. The cargo area is not separated from the passenger area - both are enclosed under the same roof.

3. **Pickups** - Cargo-carrying vehicles, usually on a truck chassis, with an enclosed cab and a separate open cargo area. The open cargo area generally is a box with raised sides with an opening tailgate. There are also a small number of auto pickups which are similar to regular pickups except that they are built on a passenger car chassis. Pickups are further divided into two subgroups based on curb weight -- small pickups (less than 3,500 pounds) and standard pickups (3,500 pounds or more).

4. **Utility Vehicles** - Vehicles built on a heavy-duty chassis capable of off road use. They are of conventional construction with the driver behind the engine. The cargo and passenger areas are integral with the driver area. Many of these vehicles are equipped with soft or removable tops. Frequently, these vehicles are equipped with four-wheel drive. Utility vehicles are further divided into three subgroups based on wheelbase - small utility vehicles (less than 100 inches), intermediate utility vehicle (from 100 to 120 inches), and large utility vehicles (greater than 120 inches).

Vehicle Identification Number (VIN) - A code, variously comprising both numbers and letters; normally, 8 to 17 characters in length, assigned to each vehicle by its manufacturer. The VIN uniquely identifies the vehicle within at least a ten-year time span and, in recent model year vehicles, almost always contains coding which identifies the make, series, model year, and other characteristics of each vehicle.

Vehicle Series - A name denoting a family of vehicles, within a make, with the same wheelbase and a degree of commonality in construction such as body, chassis, etc.

Selected Publications

R88-2 *Insurance Collision Report, Passenger Cars, Vans, Pickups, and Utility Vehicles, 1988 Models During Their First Year, 1987 Models During their First Two years, 1986 Models During Their First Three Years*, December 1988.

R89-1 *Insurance Collision Report, Initial Results for 1989 Automobiles*, August 1989.

I88-1 *Insurance Injury Report, Passenger Cars, Vans, Pickups, and Utility Vehicles; 1986-1988 Models*, September 1989.

T88-1 *Insurance Theft Report; Passenger Cars, Vans, Pickups, and Utility Vehicles: 1988 Models During Their First Year, 1987 Models During Their First Two Years, 1986 Models During Their First Three Years*, May 1989.

A-5 *Automobile Insurance Losses, Collision Coverages; Relationships Between Losses and Vehicle Body Style, 1974 and 1975 Models*, December 1975.

A-7 *Automobile Insurance Losses, Collision Coverages; Annual Increases and Seasonal Variations 1972, 1973, 1974 and 1975 Models*, June 1976.

A-9 *Automobile Insurance Losses, Collision Coverage; A Comparison of Collision Claim Size Distributions for 1974-76 Models*, November 1977.

A-11 *Automobile Insurance Losses, Collision Coverage; The Consistency of the Loss Experience of Specific Vehicles Produced in Several Years, 1975 to 1978 Models*, June 1979.

A-12 *Automobile Insurance Losses, Collision Coverage; An Assessment of the Effects of the Federal Safety Bumper Standard on the Losses for 1972 Through 1978 Models*, June 1980.

A-13 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverage; The Effects of Car Size on Crash Losses, 1977-1980 Models*, May 1981.

A-14 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverage; Comparisons of the Loss Experience of Two- and Four-Door Cars, 1978, 1979, and 1980 Models*, May 1981.

A-16 *Automobile Insurance Losses, Collision Coverages; The Frequency of Claims Involving Salvage; Subcompact and Compact Cars; 1980 Models*, January 1982.

A-17 *Insurance Losses, Comprehensive Coverage; Non-Crash Fire Losses; 1979-1980 Models*, February 1982.

A-18 *Insurance Losses, Theft Coverage; The Distribution of Theft Loss Payment Amounts; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1981 Models During Their First Year, 1980 Models During Their First Two Years, 1979 Models During Their First Three Years*, June 1982.

A-19 *Insurance Losses, Theft Coverages; A Comparison of the Theft Loss Experience of General Motors Passenger Cars With and Without Factory-Installed Theft Deterrent Systems; 1980-1981 Models*, January 1983.

A-20 *Insurance Losses, Collision Coverages, A Comparison of the Collision Loss Experience of Subaru Models with 5 and 2.5 MPH Bumpers*, April 1983.

A-21 *Insurance Losses, Personal Injury Protection Coverages, Injury Claim Frequencies for Volkswagen Rabbits with Automatic and Manual Seat Belts, 1981, and 1982 Models*, April 1984.

A-22 *Insurance Losses, Collision Coverages, An Analysis of Salvage Credits, 1977 Through 1982 Model Year Cars*, July 1984.

A-23 *Injury and Collision Losses by Engine Option, Selected 1983 Models*, October 1985.

A-24 *Comparison of the Insurance Loss Experience of Unibody and Frame Construction Cars After a Collision Repair, 1981-82 Models*, October 1985.

A-25 *Relationships Between Losses and Vehicle Density, 1982-84 Models*, October 1985.

A-26 *Consistency of Model Year Injury Claim Frequency Results for Selected 1981-1983 Models*, May 1986.

A-27 *A Preliminary Evaluation of New York and New Jersey Insurance Injury Claim Results Before and After Enactment of Mandatory Seat Belt Legislation; 1983-85 Models*, May 1986.

A-28 *Insurance Injury Loss Experience in Eight States with Seat Belt Laws, 1983-86 Models*, July 1988.

A-29 *Insurance Losses Based on Garaging Location, 1985-87 Models*, June 1988.

A-30 *Automobile Insurance Losses, A Comparison of California and National Results*, May 1988.

A-31 *The Effect of Vehicle Component Parts Marking on Theft*, December 1989.

Sponsoring Companies

Aetna Casualty & Surety Company of America Aetna Casualty & Surety Company of Illinois Aetna Casualty and Surety Company AgSecurity Insurance Company Alaska Pacific Assurance Company Alfa Mutual General Insurance Company Alfa Mutual Insurance Company Alliance Assurance Company Ltd. Allied Insurance Company Allstate Indemnity Company Allstate Insurance Company Allstate Property and Casualty Insurance Company American & Foreign Insurance Company American Casualty Company American Economy Insurance Company American Family Mutual Insurance Company American General Fire & Casualty Company American Lloyds Insurance Company American Manufacturers Mutual Insurance Company American Motorist Insurance Company American Protection Insurance Company American States Preferred Insurance Company American States Insurance Company American States Insurance Company of Texas Amica Mutual Insurance Company Assurance Company of America Athena Assurance Company Atlanta Casualty Company Atlantic Employers Insurance Company Atlas Assurance Company of America Automobile Insurance Company of Hartford Bankers Standard Insurance Company Bituminous Casualty Corporation Bituminous Fire & Marine Insurance Company Boston Old Colony Insurance Company Brotherhood Mutual Insurance Company Buckeye Union Insurance Company CIGNA Fire Underwriters Insurance Company CIGNA Insurance Company of the Midwest CIGNA Insurance Company of Illinois CIGNA Insurance Company of Ohio CIGNA Insurance Company of Texas CIGNA Property and Casualty Insurance Company CIGNA Insurance Company CUMIS Insurance Society Inc. Camden Fire Insurance Association Casualty Insurance Company Century Indemnity Company Charter Oak Fire Insurance Company Chubb Insurance Company of New Jersey Chubb Lloyds Insurance Company of Texas Church Mutual Insurance Company Classic Insurance Company Colonial Insurance Company Columbia Casualty Company Commercial Insurance Company of Newark Concord General Mutual Insurance Company Continental Casualty Company Continental Insurance Company Continental Insurance Company of New Jersey Cotton States Mutual Insurance Company Country Casualty Insurance Company Country Mutual Insurance Company Country Preferred Insurance Company Countrywide Insurance Company Covenant Insurance Company Criterion Casualty Company Economy Fire and Casualty Company Empire Insurance Company Employers Insurance of Wausau Employers Mutual Casualty Company Erie Insurance Exchange Farm Bureau Mutual Insurance Company Inc. of Kansas Farm Bureau Mutual Insurance Company of Idaho Farm Bureau Mutual Insurance Company of Iowa Farm Bureau Mutual Insurance Company of Nebraska Farmers & Merchants Insurance Company Farmers Automobile Association of Pekin Illinois Farmers Insurance Company Inc. Farmers Insurance Company of Arizona Farmers Insurance Company of Idaho Farmers Insurance Company of Oregon Farmers Insurance Company of Washington Farmers Insurance Exchange Farmers Insurance of Columbus Inc. Farmers Mutual Insurance Company of Nebraska Farmers Texas County Mutual Insurance Company Farmington Casualty Company Farmland Mutual Insurance Company Federal Insurance Company Federal Kemper Insurance Company The Fidelity & Casualty Company of New York Fidelity & Guaranty Insurance Company Fidelity & Guaranty Insurance Underwriters Inc. Fidelity and Deposit Company of Maryland Firemen's Insurance Company of Newark First Fire and Casualty Insurance of Hawaii Inc. First Indemnity Insurance of Hawaii Inc. First Insurance Company of Hawaii Ltd. Foundation Reserve Insurance Company Inc. GEICO General Insurance Company GEICO Indemnity Company General Accident Insurance Company of America The Glens Falls Insurance Company Globe Indemnity Company Gothaer Insurance Company Government Employees Insurance Company Great Northern Insurance Company Great West Casualty Company Green Mountain Insurance Company Inc. Grinnell Mutual Reinsurance Company Guaranty National Insurance Company Halcyon Insurance Company Harbor Insurance Company Harleysville Mutual Insurance Company Hartford Accident and Indemnity Company Hartford Casualty Insurance Company Hartford Fire Insurance Company Hartford Insurance Company of Connecticut Hartford Insurance Company of Illinois Hartford Insurance Company of the Midwest Hartford Insurance Company of the Southeast IDS Property Casualty Insurance Company Illinois Employers Insurance of Wausau Illinois Farmers Insurance Company Indemnity Insurance Company of North America Indiana Farmers Mutual Insurance Company Insurance Company of North America John Deere Insurance Company KFB Insurance Company Inc. Kansas City Fire and Marine Insurance Company Kentucky Central Insurance Company League General Insurance Company Liberty Insurance Corporation Liberty Mutual Fire Insurance Company Liberty Mutual Insurance Company Liberty Northwest Insurance Corporation London Assurance Lumbermens Mutual Casualty Company Maine Bonding and Casualty Company Maryland Casualty Company Mayflower Insurance Company Ltd. Merit Insurance Company Metropolitan Property and Liability Insurance Company Michigan Education Employees Mutual Insurance Company Michigan Mutual Insurance Company Mid-Century Insurance Company Mid-Century Insurance Company of Texas Middlesex Mutual Assurance Company Midwest Mutual Insurance Company Montgomery Mutual Insurance Company Motor Club Insurance Association of Nebraska Motor Club of America Insurance Company Motors Insurance Corporation NWNL General Insurance Company National Casualty Company National Continental Insurance Company National Fire Insurance Company of Hartford National General Fire & Casualty Company National General Insurance Company of Missouri National Grange Mutual Insurance Company National Standard Insurance Company National-Ben Franklin Insurance Company of Illinois Nationwide Agribusiness Insurance Company Nationwide General Insurance Company Nationwide Indemnity Insurance Company Nationwide Mutual Fire Insurance Company Nationwide Mutual Insurance Company Nationwide Property and Casualty Insurance Company New York Underwriters Insurance Company Newark Insurance Company Niagara Fire Insurance Company North Carolina Farm Bureau Mutual Insurance Company North Pacific Insurance Company Northbrook Indemnity Company Northbrook National Insurance Company Northbrook Property and Casualty Insurance Company Northern Insurance Company of New York Northwestern Pacific Indemnity Company Nutmeg Insurance Company Oklahoma Farm Bureau Mutual Insurance Company Oregon Automobile Insurance Company Pacific Employers Insurance Company Pacific Indemnity Company Pacific Insurance Company Pacific Insurance Company Ltd. Pekin Insurance Company Pennsylvania General Insurance Company PEMCO Insurance Company Phoenix Insurance Company Potomac Insurance Company of Illinois Preferred Risk Insurance Company Progressive American Insurance Company Progressive Casualty Insurance Company Progressive County Mutual Insurance Company Progressive Gulf Insurance Company Progressive Mutual Insurance Company Progressive Northern Insurance Company Progressive Northwestern Insurance Company Progressive Southeastern Insurance Company Progressive Specialty Insurance Company Prudential Commercial Insurance Company Prudential General Insurance Company Prudential-LMI Commercial Insurance Company Prudential Property and Casualty Insurance Company Public Employees Mutual Insurance Company Puerto Rican-American Insurance Company Ramsey Insurance Company Ranger Insurance Company Royal Indemnity Company Royal Insurance Company of America Royal Milbank Insurance Companies SECURA Insurance Safeguard Insurance Company St. Paul Fire & Marine Insurance Company St. Paul Fire and Casualty Insurance Company St. Paul Guardian Insurance Company St. Paul Indemnity Insurance Company St. Paul Insurance Company St. Paul Insurance Company of Illinois St. Paul Insurance Company of North Dakota St. Paul Lloyds Insurance Company St. Paul Mercury Insurance Company St. Paul Property and Casualty Insurance Company Scottsdale Insurance Company Sea Insurance Company Ltd. Selective Insurance Company of America Selective Insurance Company of the Southeast Selective Way Insurance Company Sentinel Insurance Company Ltd. Shelter General Insurance Company Shelter Mutual Insurance Company Shield Insurance Company Southern Guaranty Insurance Company Southern Heritage Insurance Company Standard Fire Insurance Company State Auto Insurance Company State Farm County Mutual Insurance Company of Texas State Farm Fire and Casualty Company State Farm General Insurance Company State Farm Mutual Automobile Insurance Company Sun Insurance Office Ltd. Texas Employers' Insurance Association Texas Farmers Insurance Company Texas Pacific Indemnity Company Transamerica Indemnity Company Transamerica Insurance Company Transamerica Insurance Company of Michigan Transamerica Insurance Company of Texas Transamerica Insurance Corporation of America Transamerica Premier Insurance Company Transamerica Specialty Insurance Company Transcontinental Insurance Company Transportation Insurance Company Travelers Indemnity Company Travelers Indemnity Company of America Travelers Indemnity Company of Illinois Travelers Indemnity Company of Rhode Island Travelers Insurance Company Truck Insurance Exchange Twin City Fire Insurance Company USAA Casualty Insurance Company United Financial Casualty Insurance Company United Services Automobile Association United States Fidelity and Guaranty Company Utica Mutual Insurance Company Valley Forge Insurance Company Valiant Insurance Company Vigilant Insurance Company Wausau Underwriters Insurance Company Western Casualty & Surety Company

A5200-4.24 F

INSURANCE SPECIAL REPORT

A-33

Noncrash Fire Losses, 1986-88

Highway Loss Data Institute

Insurance Special Report
A-33

Noncrash Fire Losses

HIGHWAY
LOSS
DATA
INSTITUTE

Permission to quote from or to reproduce material from this publication is granted when due acknowledgement is made.

Highway Loss Data Institute -- 1005 North Glebe Road -- Arlington, Virginia 22201
Research Report HLDI A-33--December 1989

Copyright 1989/HLDI

The membership of the Highway Loss Data Institute Board of Directors and the Technical Resource Committee represents insurance companies that are supplying data to HLDI. Financial support for HLDI is provided through the Insurance Institute for Highway Safety, which in turn is supported by most automobile insurers either directly or through their trade associations.

Board of Directors

G.C. Klingman, Chairman
The Travelers Insurance Companies

M. Albaum
Prudential Property and Casualty Insurance Company

H.L. Cohen
Government Employees Insurance Company

J.B. Conners
Liberty Mutual Insurance Company

S.F. Goldberg
United Services Automobile Association

T.A. Hoyt
Nationwide Mutual Insurance Company

R.S. Lawson
Alliance of American Insurers

S.D. Marks
Aetna Life and Casualty

D.F. Snyder
American Insurance Association

W.W. Sorenson
State Farm Mutual Automobile Insurance Company

J.S. Trees
Allstate Insurance Company

T.E. Troxel
National Association of Independent Insurers

B. O'Neill, ex officio
Highway Loss Data Institute

Technical Resource Committee

M. Albaum, Chairman
Prudential Property and Casualty Insurance Company

H.L. Cohen
Government Employees Insurance Company

R.O. Elder
Highway Loss Data Institute

S.F. Goldberg
United Services Automobile Association

T.A. Hoyt
Nationwide Mutual Insurance Company

G.C. Klingman
The Travelers Insurance Companies

S.D. Marks
Aetna Life and Casualty

R.T. Muleski
Liberty Mutual Insurance Company

B. O'Neill
Highway Loss Data Institute

W.W. Sorenson
State Farm Mutual Automobile Insurance Company

J.S. Trees
Allstate Insurance Company

CONTENTS

Summary 1

Introduction 2

Results and Discussion 2

Passenger Vehicles 3

Vans, Pickups, and Utility Vehicles 18

Appendix A Definitions 25

Appendix B Noncrash Fire Related Vehicle Recall Campaigns of 1986-88 Models Involving >10,000 Vehicles 26

Selected Publications 29

Table 1 Noncrash Fire Losses, 1986-88 Passenger Vehicles and Vans, Pickups, and Utility Vehicles 2

Table 2 Noncrash Fire Losses, 1986-88 Passenger Vehicles by Year of Availability 3

Table 3 Distribution of Noncrash Fire Claims by Body Style and Size Class; 1987 Model Passenger Vehicles 4

Table 4 Noncrash Fire Losses, 1986-88 Models; Passenger Vehicles With the Highest Average Loss Payments Per Insured Vehicle Year 5

Table 5 Distribution of Paid Noncrash Fire Claims for 1987 Passenger Vehicles with the Highest Average Loss Payments Per Insured Vehicle Year 6

Table 6 Noncrash Fire Losses, Comprehensive Coverages; 1988 Models -- Passenger Vehicles 7

Table 7 Noncrash Fire Losses, Comprehensive Coverages; 1987 Models -- Passenger Vehicles 10

Table 8 Noncrash Fire Losses, Comprehensive Coverages; 1986 Models -- Passenger Vehicles 14

Table 9 Summary of Noncrash Fire Losses; 1986-88 Models -- Vans, Pickups, and Utility Vehicles 18

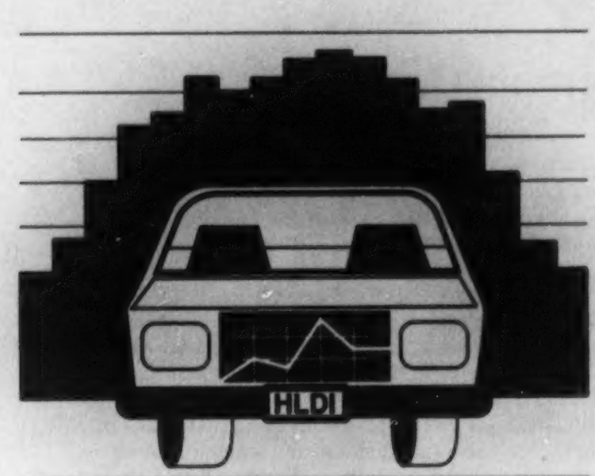
Table 10 Noncrash Fire Losses 1986-88 Models; Vans, Pickups, and Utility Vehicles With the Highest Average Loss Payments Per Insured Vehicle Year 19

Table 11 Noncrash Fire Losses, Comprehensive Coverages; 1988 Models -- Vans, Pickups, and Utility Vehicles 20

Table 12 Noncrash Fire Losses, Comprehensive Coverages; 1987 Models -- Vans, Pickups, and Utility Vehicles 21

Table 13 Noncrash Fire Losses, Comprehensive Coverages; 1986 Models -- Vans, Pickups, and Utility Vehicles 23

Figure 1 Noncrash Fire Losses -- 1987 Models; Relative Average Loss Payments Per Insured Vehicle Year 4



SUMMARY

This Highway Loss Data Institute special report presents results of the noncrash fire loss experience of 1986-88 model year vehicles under comprehensive automobile insurance coverage.

Principal Findings

- The noncrash fire loss experience of different vehicles varied greatly. The 1986 Chevrolet Corvette registered the worst results, with losses more than seven times the average. The 1988 Chevrolet Nova had the best results with losses less than one-tenth the average.

- For both 1986 and 1987 models, the Yugo two-door recorded the highest noncrash fire claim frequency.

- Some models with low claim frequencies experienced very high average loss payments per claim. For example, the 1987 Mercedes-Benz 260/300 series registered a claim frequency about one-half the all passenger vehicle average but an average loss payment per claim of $25,000, about seven times the average.

- Among passenger vehicles the sports and specialty models had higher fire losses than other body styles, and regular four-door models had the lowest loss levels.

- For all three model years, vans, pickups, and utility vehicles had much higher levels of noncrash fire losses than did passenger vehicles.

- Four-wheel drive vehicles accounted for eight of the eleven van, pickup, and utility vehicle series with the largest noncrash fire losses.

INTRODUCTION

The Highway Loss Data Institute is a nonprofit public service organization that gathers, processes, and publishes insurance data concerned with human and economic losses resulting from owning and operating motor vehicles, especially the ways such losses vary among different kinds of vehicles.

At the request of the National Highway Traffic Safety Administration (NHTSA), HLDI compiled the noncrash fire loss experience of 1986-88 private passenger vehicles as well as vans, pickups, and utility vehicles. This report summarizes the results of that compilation, as furnished to NHTSA. Although fire losses are small in relation to losses from other automobile insurance coverages, automobile fires are potentially hazardous to vehicle occupants and others. The report is based on comprehensive coverage and loss data supplied by 12 insurers: Aetna, Allstate, Fireman's Fund, GEICO, Kemper, Liberty Mutual, Nationwide, Prudential, Safeco, State Farm, Travelers, and USAA.

It is intended that the dissemination of this and other HLDI reports will contribute to research into ways for reducing vehicle-related damage to people and property and that it will inform the public about differences in the loss experience produced by different kinds of vehicles.

RESULTS AND DISCUSSION

Noncrash fire claims are filed under the comprehensive coverage portion of automobile insurance and can result from a number of vehicle problems such as engine overheating, electrical shorts, and fuel leakage. It is important to recognize that some noncrash fire claims are the result of arson and the frequency of such claims is unknown. This report summarizes the noncrash fire loss experience of 1986-88 model private passenger vehicles, vans, pickups, and utility vehicles. (See Appendix A for definitions.) The loss results presented are based on 13.6 million insured vehicle years of exposure for 1986 models, 9.4 million years for 1987 models, and 4.1 million years for 1988 models.

The results are standardized to minimize differences that might be attributed to variations in the mix of deductible amounts and operator age groups among different vehicles. Both the frequency and the average size of noncrash fire losses vary with the deductible amount and the age group of the operators. Standardization ensures that the mix of these two nonvehicle factors is the same for each result. Therefore, to the extent that age distributions within each operator age group and dollar amounts within each deductible group do not vary substantially for different vehicles, these effects will not bias comparisons among the various results. Other nonvehicle factors have not necessarily been eliminated from the results presented in this report.

Comparison of Results for Passenger Vehicles and for Vans, Pickups, and Utility Vehicles

Table 1 gives exposure in insured vehicle years, claim frequency (claims per 10,000 insured vehicle years), average loss payment per claim, and average loss payment per insured vehicle year for 1986-88 passenger vehicles and for vans, pickups, and utility vehicles. The average loss payment per insured vehicle year combines claim frequencies and average loss payments per claim and therefore accounts for how

Table 1
Noncrash Fire Losses, 1986-88
Passenger Vehicles and Vans, Pickups, and Utility Vehicles

Model Year	Exposure (Insured Vehicle Years)	Claim Frequency*	Average Loss Payment Per Claim	Average Loss Payment Per Insured Vehicle Year
Passenger Vehicles				
1986	10,691,955	6.6	$3,448	$2.30
1987	7,324,659	6.1	3,606	2.20
1988	3,073,336	5.0	3,760	1.90
Vans, Pickups, and Utility Vehicles				
1986	2,930,061	9.3	4,169	3.90
1987	2,030,876	7.4	4,947	3.70
1988	991,406	6.7	5,297	3.60

* Claims per 10,000 Insured Vehicle Years

often noncrash fire claims are made as well as the magnitude of the loss. For each model year, claim frequencies and average loss payments per claim are higher for vans, pickups, and utility vehicles than for passenger vehicles. As a result, average loss payments per insured vehicle year are 70 to 90 percent higher for vans, pickups, and utility vehicles than for passenger vehicles.

As shown by Table 1, claim frequencies were highest for the 1986 models (both passenger vehicles and vans, pickups, and utility vehicles), lower for the 1987 models, and lower still for the 1988 model vehicles. Conversely, average loss payments per claim were higher for 1987 than 1986 models and highest for 1988 models. The resulting average loss payment per insured vehicle year declined for successive model years.

Table 2 shows claim frequencies, average loss payments per claim, and average loss payments per insured vehicle year by year of availability for the 1986-88 passenger vehicles. As shown in Table 2, the higher claim frequencies registered by the 1986 model passenger vehicles were not the result of vehicle aging. The 1986 and 1987 models actually had lower claim frequencies in their second and third years than in their initial year of availability. Average loss payments increased substantially in the second and third years of availability, however, causing average loss payments per insured vehicle year to increase as the vehicles aged.

Passenger Vehicles

Results by Size and Body Style

Figure 1 shows average noncrash fire loss payments per insured vehicle year for 1987 model passenger vehicles. Results are displayed for three size classes and four body style groups within each size class. All results are expressed relative to the average loss payment per insured vehicle year for all 1987 passenger vehicles of $2.20, which is set to a value of 100.

Both small and midsize sports and specialty passenger vehicles registered average loss payments per insured vehicle year more than double the average. Two-door models in all three size classes and large station wagons and passenger vans also had above average noncrash fire losses.

The claim size distribution for 1987 model passenger vehicles by size and body style is shown in Table 3. Data are presented for three size classes and for four body styles within each size class. For all of the various groupings, about one-third to one-half of the claims are in the under $500 category. The percentage of claims over $10,000 varies from only 4 percent of claims for small four-door models to as much as 25 percent for small and midsize sports and specialty vehicles and large station wagons and passenger vans.

Table 2
Noncrash Fire Losses
1986-88 Passenger Vehicles by Year of Availability

	Year 1	Year 2	Year 3
Claim Frequency*			
1988 Models	5.0		
1987 Models	6.2	6.0	
1986 Models	7.3	6.2	6.7
Average Loss Payment Per Claim ($)			
1988 Models	3,760		
1987 Models	3,265	3,710	
1986 Models	3,000	3,484	3,581
Average Loss Payment Per Insured Vehicle Year ($)			
1988 Models	1.90		
1987 Models	2.03	2.23	
1986 Models	2.17	2.14	2.41

* Claims per 10,000 Insured Vehicle Years.

Figure 1
Noncrash Fire Losses - 1987 Models
Relative Average Loss Payments Per Insured Vehicle Year

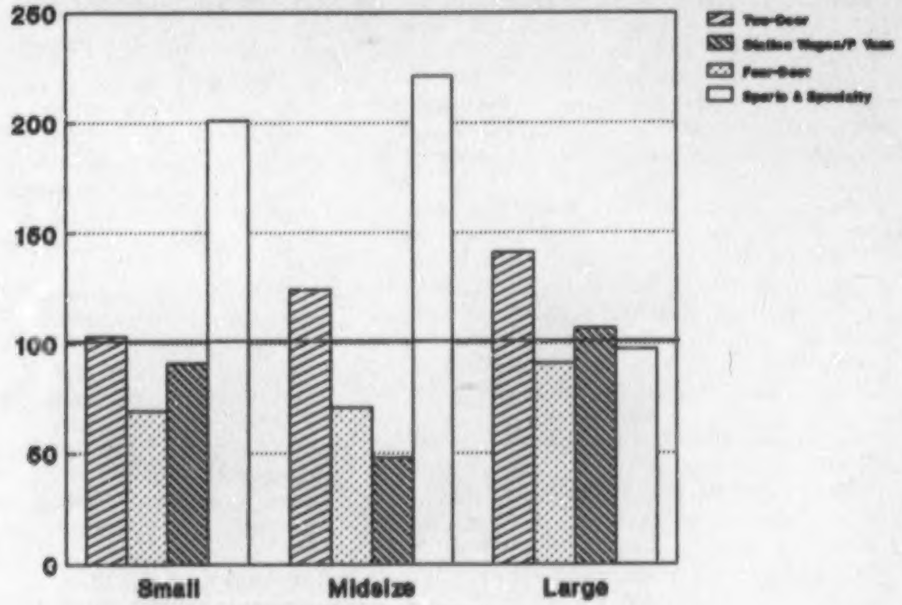


Table 3
Distribution of Noncrash Fire Claims by Body Style and Size Class 1987 Model Passenger Vehicles

Size Class and Body Style	Percent				
	≤$500	$501-$2,000	$2,001-$5,000	$5,001-10,000	>$10,000
Small					
Two-Door	35.5	21.9	12.6	20.3	9.8
Four-Door	37.9	24.6	10.9	22.6	4.0
Station Wagon/Pass. Van	35.5	18.7	4.7	17.8	23.4
Sports/Specialty	28.9	23.9	10.0	11.7	25.6
Midsize					
Two-Door	46.0	12.5	6.7	15.8	19.0
Four-Door	50.2	17.8	5.9	12.8	13.3
Station Wagon/Pass. Van	52.7	15.1	3.2	14.0	15.1
Sports/Specialty	35.1	15.7	9.4	14.2	25.6
Large					
Two-Door	41.7	33.3	0	8.3	16.7
Four-Door	57.9	13.2	5.8	5.8	17.3
Station Wagon/Pass. Van	36.0	22.0	14.0	3.0	25.0
Sports/Specialty	52.3	13.1	9.3	3.7	21.5

Comparisons of Individual Passenger Vehicle Series

Table 4 summarizes the 1986-88 model year passenger vehicles with the highest average loss payments per insured vehicle year. The results are expressed in relative terms with the value 100 representing the all-passenger-vehicle result in each loss category for each model year. Each passenger vehicle in Table 4 had a relative average loss payment per insured vehicle year of 250 or more (two and one-half times the average for all passenger vehicles) in at least one of the three model years. Each relative average loss payment per insured vehicle year of 250 or more is shown in bold print. The last row in the table gives the actual all-passenger-vehicle values for each loss category. Claim frequency and average loss payment per claim are also given for these models.

Table 4 also indicates that three of the eleven listed series have been subject to substantial vehicle recall campaigns for problems related to noncrash fires. Appendix B contains all 1986-88 car lines that were listed in the National Highway Traffic Safety Administration's Monthly Defect Investigation Reports as having had more than 10,000 vehicles recalled (voluntary or mandated) due to noncrash fire problems. Passenger vehicles recalled were the Ford Mustang and Mustang Convertible and the Audi 5000.

The Chevrolet Corvette registered the worst noncrash fire results with a relative claim frequency and a relative average loss payment per claim two to three times the average. Ten of the eleven vehicles listed in Table 4 are sports or specialty models. (The Dodge Daytona is classified as a small two-door model.) Most of the vehicles in Table 4 registered higher than average claim frequencies and higher than average loss payments per claim. A notable exception to this pattern of losses were the results for the Mercedes-Benz 260/300 series. For both the 1986 and 1987 models, the Mercedes' relative claim frequency was much better than average, but the relative average loss payment per claim was five to seven times the all-passenger-vehicle average. The average payment per claim for the 1987 model of this vehicle exceeded $25,000. The Chevrolet Corvette, Chevrolet Camaro, Pontiac Firebird, and Ford Mustang had noncrash fire claim frequencies more than double the all-vehicle average in at least one of the three model years.

Table 5 presents the claim size distributions for the 1987 vehicles series with the highest average loss payments per insured vehicle year and at least 30 claims. Data are presented for four vehicle series and even among this group with the worst noncrash fire losses, a significant percentage of total claims are under $500. But claims exceeding $10,000 represent the next largest group of claims for these series with the Mazda RX-7 having the highest percentage of claims over $10,000.

Table 4
Noncrash Fire Losses, 1986-88 Models
Passenger Vehicles With the Highest Average Loss Payments Per Insured Vehicle Year

Make & Series	Recalls For Vehicle Fires	Relative Claim Frequency			Relative Average Loss Payment Per Claim			Relative Average Loss Payment Per Insured Vehicle Year		
		1986	1987	1988	1986	1987	1988	1986	1987	1988
Chevrolet Corvette		231			323			**748**		
Mercedes 260/300 Series		36	55		534	700		194	**382**	
Audi 5000	Yes	134			243			**325**		
Chevrolet Camaro		207	257	196	143	105	164	**296**	**271**	**321**
Pontiac Firebird		192	229		154	133		**295**	**304**	
Mazda RX-7		122	140		173	211		211	**296**	
Dodge Daytona		166	130	181	121	63	153	202	82	**275**
Ford Mustang	Yes	152	219	190	86	124	117	130	**271**	222
BMW 325e 4D		132			204			**270**		
Ford Mustang Conv.	Yes	163			160			**281**		
Toyota Supra		135	115		116	218		157	**250**	
All passenger vehicle average = 100										
Actual Results =		6.6*	6.1*	5.0*	$3,448	$3,606	$3,760	$2.30	$2.20	$1.90

Note: Blanks indicate insufficient exposure. Bold print indicates average loss payments per insured vehicle year at least two and one-half times the all-passenger-vehicle average.

* Claims per 10,000 insured vehicle years.

Table 5
Distribution of Paid Noncrash Fire Claims for 1987 Passenger Vehicles with the Highest Average Loss Payments Per Insured Vehicle Year

		Percent			
Make and Series	**Sample Size**	**≤$500**	**$501-$2,000**	**$2,001-$10,000**	**>$10,000**
Chevrolet Camaro	109	38.5	11.9	26.6	22.9
Pontiac Firebird	69	33.3	13.1	26.1	27.5
Mazda RX-7	33	24.2	21.2	9.1	45.5
Ford Mustang	112	32.1	18.8	33.9	15.2

Tables 6, 7, and 8 present detailed noncrash fire results for, respectively, 1988, 1987, and 1986 model year passenger vehicles for all individual series with more than 20,000 insured vehicle years of exposure or at least twenty fire claims. It should be noted that the larger the exposure for a series, the greater the confidence that can be placed in the results. The tables contain total exposure (in insured vehicle years), claim frequency (per 10,000 insured vehicle years), average loss payment per claim, and average loss payment per insured vehicle year for each series. The last three variables are presented relative to the results for all passenger vehicles of that model year being set to a value of 100. In addition to individual series results, size class and body style group results are also given. Within each body style subgroup, individual vehicle series are listed in ascending order of their relative average loss payments per insured vehicle year.

Even within size class and body style subgroups there was considerable variation in individual series results. For example, the highest and lowest claim frequencies for 1987 passenger vehicles were recorded by small two-door automobiles. The Yugo had the highest relative claim frequency (269), and the Acura Integra the lowest (19). For 1986 models the Yugo two-door again had the highest relative claim frequency (337), but the Subaru DL/GL small station wagon had the lowest (25). The 1988 Chevrolet Camaro recorded the highest relative claim frequency (196), and the Dodge Grand Caravan the lowest (19).

The 1988 Dodge Grand Caravan, however, had the highest relative average loss payment per claim (243) and the four-door Chevrolet Caprice the lowest (3) of the 1988 models with sufficient exposure to have detailed results presented. Relative average loss payments per claim for 1987 models ranged from the Mercedes-Benz 260/300 series at seven times the average (700) to the four-door Chrysler LeBaron at less than one-quarter of the average (23) for all 1987 passenger vehicles. The average loss payment per claim of $25,242 for the Mercedes-Benz 260/300 series was more than 30 times the $829 average loss payment per claim of the Chrysler LeBaron. For the 1986 models, the Mercedes-Benz 300 series again recorded the highest average loss payment per claim (534) and the two-door Honda Accord registered the lowest (24).

Table 6
Noncrash Fire Losses, Comprehensive Coverages
1988 Models - Passenger Vehicles

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Payment Per Insured Vehicle Year
All	All	3,073,336	100 = 5.0	100 = $3,760	100 = $1.90
		SMALL CARS			
Two-Door Models		468,430	122	92	112
Toyota	Tercel	31,147	71	65	46
Ford	Festiva	28,265	125	41	51
Nissan	Sentra	47,818	90	125	112
Hyundai	Excel	33,233	136	98	133
Ford	Escort	42,523	169	80	135
Dodge	Daytona	21,511	181	153	275
Four-Door Models		358,094	86	91	79
Chevrolet	Nova	27,964	45	15	7
Toyota	Corolla	34,399	54	38	21
Honda	Civic	37,566	86	40	35
Mazda	323	21,705	72	49	35
Hyundai	Excel	59,103	117	134	158
Station Wagons/Passenger Vans		55,775	93	108	101
Sports & Specialty		68,959	130	168	218
		MIDSIZE CARS			
Two-Door Models		483,533	118	96	113
Buick	Regal	29,045	113	24	27
Pontiac	Grand Am	48,359	36	148	53
Honda	Accord	26,618	67	83	56
Oldsmobile	Calais	20,358	128	44	56
Chevrolet	Cavalier	42,731	105	90	95
Chevrolet	Beretta	98,376	118	99	116
Mercury	Cougar	32,985	164	113	185
Ford	Thunderbird	34,906	187	117	219
Honda	Prelude	31,093	155	148	231

Table 6 – 1988 Models (Cont'd)

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Payment Per Insured Vehicle Year
Four-Door Models		749,382	89	74	66
Buick	Century	21,445	80	16	13
Mazda	626	24,903	37	84	31
Plymouth	Reliant	23,768	135	24	32
Honda	Accord	108,944	41	87	36
Toyota	Camry	65,882	87	46	40
Oldsmobile	Cutlass Ciera	46,139	95	48	46
Chevrolet	Corsica	82,438	87	62	54
Ford	Tempo	43,239	97	57	56
Chevrolet	Celebrity	36,873	113	63	72
Ford	Taurus	49,705	117	136	160
Station Wagons/Passenger Vans		84,331	102	71	72
Ford	Taurus	21,833	184	61	111
Sports & Specialty		233,362	146	140	204
Ford	Mustang	50,636	190	117	222
Chevrolet	Camaro	25,239	196	164	321
		LARGE CARS			
Two-Door Models		5,113	**	**	**
Four-Door Models		214,090	111	69	76
Chevrolet	Caprice	20,393	152	3	4
Oldsmobile	Delta 88	35,110	78	22	17
Pontiac	Bonneville	20,591	174	25	43
Buick	LeSabre	29,066	82	90	74
Buick	Electra	20,372	92	80	74
Mercury	Grand Marquis	32,296	121	128	155
Ford	Crown Victoria	22,693	101	202	204
Station Wagons/Passenger Vans		222,989	59	129	7
Chevrolet	Astro Van	29,524	70	34	24
Dodge	Grand Caravan	26,929	19	243	47
Plymouth	Voyager	36,094	75	81	61
Dodge	Caravan	35,234	88	87	77
Plymouth	Grand Voyager	26,043	45	186	84
Ford	Aerostar	48,339	49	217	107

Table 6 -- 1988 Models (Cont'd)

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Payment Per Insured Vehicle Year
Sports & Specialty		129,273	78	215	168
Cadillac	DeVille 4D	24,186	49	104	51
Lincoln	Town Car	55,950	70	112	78

** Indicates this subgroup has less than 20,000 vehicle years of exposure.

Results are standardized to the distribution:

Deductible	Youthful Operator	No Youthful Operator
= $0	5%	50%
> $0	5%	40%

Series are ranked within group and subgroup by ascending average loss payment per insured vehicle year. Series with less than 20,000 insured vehicle years of exposure and fewer than 20 claims are not summarized.

Table 7

Noncrash Fire Losses, Comprehensive Coverages
1987 Models - Passenger Vehicles

Make	**Series**	**Total Exposure (Insured Vehicle Years)**	**Relative Claim Frequency**	**Relative Average Loss Payment Per Claim**	**Relative Average Loss Pay-Ment Per Insured Vehicle Year**
All	**All**	**7,324,659**	**100 = 6.1**	**100 = $3,606**	**100 = $2.20**
		SMALL CARS			
Two-Door Models		**1,095,596**	**108**	**91**	**99**
Honda	Civic	41,036	39	70	27
Acura	Integra	29,602	19	169	31
Chevrolet	Sprint	23,281	95	34	32
Nissan	Sentra	176,149	56	65	36
Hyundai	Excel	47,252	85	63	53
Nissan	200SX	25,636	37	148	55
Toyota	Tercel	53,780	72	95	69
Dodge	Daytona	20,651	130	63	82
Honda	Prelude	46,774	60	146	88
Dodge	Shadow	26,976	134	66	88
Plymouth	Sundance	25,780	77	140	107
Toyota	Celica	66,907	68	164	111
Toyota	Corolla FX	20,332	74	151	111
Ford	Escort	123,878	190	75	143
Plymouth	Turismo	32,510	191	78	148
Yugo	Yugo	26,384	269	64	173
Nissan	Pulsar	42,866	123	143	176
Dodge	Charger	35,546	212	92	195
Four-Door Models		**1,067,254**	**101**	**72**	**73**
Mazda	323	36,031	48	28	13
Plymouth	Sundance	30,178	62	60	37
Chevrolet	Nova	84,333	61	69	42
Honda	Civic	91,781	71	66	47
Nissan	Sentra	84,626	75	72	54
Toyota	Corolla	73,689	71	78	55
Dodge	Shadow	26,863	105	63	67
Ford	Escort	56,554	157	47	74
Plymouth	Horizon	101,628	127	59	75
Mazda	626	49,574	46	187	86
Volkswagen	Jetta	47,987	127	74	94
Chevrolet	Spectrum	30,940	85	115	98

Table 7 – 1987 Models (Cont'd)

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Pay-Ment Per Insured Vehicle Year
Hyundai	Excel	102,618	113	88	99
Dodge	Omni	80,019	172	62	107
Station Wagons/Passenger Vans		**195,534**	**94**	**120**	**113**
Ford	Escort	38,345	124	51	64
Subaru	DL/GL 4WD	41,802	82	90	74
Sports & Specialty		**251,357**	**121**	**157**	**189**
Honda	Civic CRX	50,643	71	103	72
Ford	EXP	18,159	215	47	101
Pontiac	Fiero	31,491	124	130	161
Mazda	RX-7	41,488	140	211	296
		MIDSIZE CARS			
Two-Door Models		**821,675**	**115**	**107**	**123**
Buick	Somerset	30,295	81	49	39
Pontiac	Grand Am	109,281	86	83	71
Pontiac	Sunbird	33,936	109	87	94
Honda	Accord	51,905	81	125	101
Oldsmobile	Calais	49,255	112	99	110
Ford	Thunderbird	76,218	128	94	121
Oldsmobile	Cutlass	53,894	132	100	133
Ford	Tempo	44,035	120	113	136
Chevrolet	Cavalier	88,777	112	137	154
Buick	Regal	36,588	132	122	161
Chevrolet	Monte Carlo	46,921	177	94	166
Chrysler	LeBaron	41,800	99	168	167
Mercury	Cougar	66,258	141	144	203
Four-Door Models		**1,763,177**	**81**	**85**	**69**
Chrysler	LeBaron	36,651	74	23	17
Dodge	Aries	32,888	91	30	27
Honda	Accord	215,152	43	67	29
Nissan	Stanza	71,800	57	63	36
Plymouth	Reliant	37,545	64	64	41
Chevrolet	Cavalier	68,251	64	76	48
Oldsmobile	Cutlass Ciera	129,406	60	81	49
Buick	Century	85,177	101	49	49
Toyota	Cressida	21,237	81	68	55
Plymouth	Caravelle	20,527	66	88	58
Chevrolet	Celebrity	114,149	98	61	59
Pontiac	Grand Am	45,985	62	105	65
Toyota	Camry	115,582	44	152	67
Mercury	Topaz	31,113	122	55	68

Table 7 – 1987 Models (Cont'd)

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Payment Per Insured Vehicle Year
Pontiac	6000	55,196	86	80	69
Mercury	Sable	46,888	74	113	84
Chrysler	LeBaron GTS	23,127	62	147	91
Chrysler	New Yorker	41,379	111	89	99
Oldsmobile	Calais	28,059	106	96	102
Nissan	Maxima	144,433	72	148	107
Ford	Tempo	97,752	125	93	116
Ford	Taurus	132,302	143	85	121
Volvo	240	25,124	56	223	125
Station Wagons/Passenger Vans		**271,675**	**56**	**88**	**50**
Toyota	Camry	21,044	27	65	17
Chevrolet	Cavalier	23,961	43	47	20
Chevrolet	Celebrity	29,835	63	98	62
Ford	Taurus	56,881	73	97	71
Sports & Specialty		**525,512**	**164**	**139**	**227**
Acura	Legend 4D	26,370	56	108	60
Volvo	740/760	32,140	72	103	74
BMW	325 2D	22,863	116	86	100
Toyota	Supra	28,953	115	218	250
Chevrolet	Camaro	83,126	257	105	271
Ford	Mustang	87,531	219	124	271
Pontiac	Firebird	56,388	229	133	304
		LARGE CARS			
Two-Door Models		**32,930**	**67**	**176**	**119**
Four-Door Models		**624,488**	**108**	**83**	**90**
Ford	Crown Victoria	47,536	107	50	53
Oldsmobile	Delta 88	95,904	107	64	68
Buick	Electra	44,251	88	88	78
Chevrolet	Caprice	75,029	145	59	85
Buick	LeSabre	82,627	105	84	89
Oldsmobile	Ninety-Eight	45,612	98	90	89
Pontiac	Bonneville	66,450	82	120	99
Chrysler	New Yorker 5th Ave	71,487	102	107	109
Mercury	Grand Marquis	73,593	135	95	128
Station Wagons/Passenger Vans		**437,949**	**83**	**131**	**108**
Plymouth	Voyager	95,507	43	96	41
Chevrolet	Astro Van	66,594	52	114	60
Dodge	Caravan	95,229	62	108	67
Ford	Aerostar	109,997	144	157	225

Table 7 -- 1987 Models (Cont'd)

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Pay-Ment Per Insured Vehicle Year
Sports & Specialty		**237,504**	**78**	**124**	**97**
Lincoln	Town Car	44,741	68	72	49
Cadillac	DeVille 2D	22,032	99	50	50
Cadillac	Fleetwood/Deville	75,508	70	82	57
Cadillac	Brougham 4D	36,291	121	126	153
Mercedes	260/300 Series	26,533	55	700	382

Results are standardized to the distribution:

Deductible	Youthful Operator	No Youthful Operator
= $0	5%	50%
> $0	5%	40%

Series are ranked within group and subgroup by ascending average loss payment per insured vehicle year. Series with less than 20,000 insured vehicle years of exposure and fewer than 20 claims are not summarized.

Table 8
Noncrash Fire Losses, Comprehensive Coverages
1986 Models - Passenger Vehicles

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Pay-Ment Per Insured Vehicle Year
All	**All**	**10,691,955**	**100 = 6.6**	**100 = $3,448**	**100 = $2.30**
		SMALL CARS			
Two-Door Models		**1,375,759**	**113**	**83**	**95**
Chevrolet	Sprint	35,904	43	49	21
Toyota	Tercel	33,844	44	58	26
Honda	Civic	72,669	44	75	33
Nissan	Sentra	83,162	55	61	34
Mazda	626	25,865	79	61	48
Mazda	323	23,544	74	66	49
Toyota	Corolla	38,816	107	60	64
Mercury	Lynx	34,687	135	57	76
Dodge	Colt	32,534	87	90	79
Ford	Escort	197,027	138	63	87
Nissan	200SX	48,269	62	146	90
Plymouth	Colt	25,404	92	99	92
Toyota	Celica	114,075	105	100	105
Nissan	Pulsar	65,133	114	97	111
Honda	Prelude	77,866	86	130	111
Chevrolet	Spectrum	27,700	123	101	124
Renault	Alliance/Encore	29,446	178	72	128
Saab	900	24,894	100	144	143
Plymouth	Turismo	33,471	166	90	149
Chevrolet	Chevette	29,013	193	78	150
Chrysler	Laser	34,139	130	124	161
Volkswagen	GTI	18,991	206	89	183
Yugo	Yugo	24,856	337	56	190
Dodge	Charger	33,740	234	82	193
Dodge	Daytona	42,447	166	121	202
Four-Door Models		**1,308,987**	**85**	**73**	**62**
Mazda	323	45,211	39	58	23
Chevrolet	Sprint	29,100	42	60	25
Honda	Civic	81,764	45	61	27
Subaru	DL/GL	43,451	70	47	33
Mazda	626	76,101	41	82	34
Nissan	Sentra	44,582	58	65	38
Chevrolet	Nova	167,006	63	74	46
Toyota	Corolla	134,188	66	72	47
Dodge	Omni	42,951	125	41	51
Volkswagen	Golf	32,112	42	134	56
Hyundai	Excel	83,690	85	79	67

Table 8 -- 1986 Models (Cont'd)

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Pay-Ment Per Insured Vehicle Year
Plymouth	Horizon	49,270	112	62	69
Chevrolet	Spectrum	59,737	90	78	71
Renault	Alliance/Encore	36,070	161	50	81
Dodge	Colt	27,025	68	129	88
Volkswagen	Jetta	89,143	116	82	96
Chevrolet	Chevette	27,807	140	69	97
Plymouth	Colt	21,489	85	117	100
Ford	Escort	96,446	150	70	105
Station Wagons/Passenger Vans		**323,685**	**79**	**90**	**71**
Subaru	DL/GL	30,581	25	130	32
Subaru	DL/GL 4WD	52,282	79	78	61
Toyota	Van	25,126	75	105	79
Ford	Escort	72,221	122	71	87
Nissan	Stanza	44,333	65	147	96
Sports & Specialty		**426,749**	**130**	**194**	**252**
Honda	Civic CRX	67,983	41	92	37
Ford	EXP	27,507	170	62	105
Toyota	MR2	34,158	151	134	202
Mazda	RX-7	55,307	122	173	211
Pontiac	Fiero	80,958	155	138	213
Nissan	300ZX	47,270	141	157	221
Chevrolet	Corvette	27,915	231	323	748
		MIDSIZE CARS			
Two-Door Models		**1,494,293**	**116**	**92**	**106**
Honda	Accord	67,570	62	24	15
Chrysler	LeBaron	25,262	49	67	33
Chevrolet	Celebrity	27,204	89	64	58
Oldsmobile	Cutlass Ciera	39,387	114	65	74
Buick	Somerset	70,989	83	92	76
Buick	Regal	83,144	108	72	77
Pontiac	Grand Am	127,110	88	97	85
Pontiac	Sunbird	54,368	117	74	87
Buick	Skyhawk	50,748	101	90	91
Ford	Thunderbird	151,124	106	98	104
Oldsmobile	Calais	81,880	130	82	107
Ford	Tempo	60,579	147	85	125
Mercury	Cougar	124,728	132	100	133
Chevrolet	Cavalier	157,681	124	111	137
Oldsmobile	Cutlass	142,559	119	127	151
Chevrolet	Monte Carlo	101,849	189	82	155
Pontiac	Grand Prix	37,208	145	147	213

Table 8 – 1986 Models (Cont'd)

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Payment Per Insured Vehicle Year
Four-Door Models		**2,713,737**	**84**	**81**	**68**
Dodge	Aries	39,970	62	48	30
Plymouth	Caravelle	25,175	76	42	32
Toyota	Camry	177,868	42	75	32
Mercury	Marquis	20,791	41	79	32
Dodge	600	22,540	51	76	38
Volvo	240	38,856	97	43	42
Pontiac	Sunbird	38,098	66	64	42
Chrysler	LeBaron	39,442	103	44	45
Chevrolet	Cavalier	136,727	72	64	46
Chevrolet	Celebrity	214,733	89	56	50
Oldsmobile	Cutlass Ciera	242,611	92	54	50
Honda	Accord	256,092	52	96	50
Buick	Century	198,840	99	57	56
Ford	Tempo	146,266	92	63	57
Buick	Skylark	49,147	70	82	57
Mercury	Topaz	34,484	91	65	59
Pontiac	Grand Am	76,558	54	124	67
Plymouth	Reliant	45,811	104	70	73
Pontiac	6000	139,690	82	92	75
Oldsmobile	Cutlass	53,682	76	114	87
Chrysler	New Yorker	49,359	109	83	90
Dodge	Lancer	46,704	89	103	92
Oldsmobile	Calais	52,951	109	85	93
Ford	LTD	44,053	90	104	93
Pontiac	Bonneville	36,236	64	161	103
Nissan	Maxima	74,389	76	136	103
Mercury	Sable	52,208	102	103	105
Chrysler	LeBaron GTS	68,990	98	112	110
Ford	Taurus	133,435	148	76	113
Toyota	Cressida	44,564	89	131	117
Cadillac	Cimarron	23,810	70	240	167
Buick	Skyhawk	21,690	112	150	167
Station Wagons/Passenger Vans		**400,954**	**72**	**106**	**77**
Plymouth	Reliant	22,324	54	35	19
Oldsmobile	Cutlass Ciera	29,641	45	90	41
Chevrolet	Celebrity	64,978	50	95	47
Chevrolet	Cavalier	47,506	58	119	69
Buick	Century	22,149	92	109	101
Volvo	240	26,043	32	322	102
Ford	Taurus	46,464	126	109	138
Sports & Specialty		**872,226**	**150**	**146**	**218**
Ford	Mustang	173,963	152	86	130
Toyota	Supra	20,708	135	116	157
Volvo	740/760	41,238	70	237	167
BMW	325e 2D	31,898	85	246	210

Table 8 – 1986 Models (Cont'd)

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Pay-Ment Per Insured Vehicle Year
Ford	Mustang Conv.	20,979	163	160	261
BMW	325e 4D	20,912	132	204	270
Pontiac	Firebird	99,003	192	154	295
Chevrolet	Camaro	168,791	207	143	296
Audi	5000	43,906	134	243	325
Two-Door Models		**81,864**	**97**	**95**	**92**
Oldsmobile	Delta 88	31,912	112	95	106
Four-Door Models		**826,230**	**94**	**97**	**91**
Buick	LeSabre	61,614	60	94	56
Pontiac	Parisienne	53,326	61	102	62
Chevrolet	Caprice	124,044	121	56	68
Oldsmobile	Delta 88	166,954	87	79	69
Mercury	Grand Marquis	79,661	107	83	89
Ford	Crown Victoria	59,437	110	95	105
Buick	Electra	92,874	101	118	120
Oldsmobile	Ninety-Eight	97,185	88	149	132
Chrysler	New Yorker 5th Ave	72,558	91	148	135
Station Wagons/Passenger Vans		**525,337**	**83**	**132**	**110**
Dodge	Caravan	111,431	46	121	56
Plymouth	Voyager	109,265	72	94	68
Chevrolet	Caprice	30,885	144	76	109
Chevrolet	Astro Van	83,269	87	145	125
Ford	Aerostar	107,674	117	132	155
Sports & Specialty		**342,328**	**82**	**139**	**115**
Cadillac	DeVille 4D	113,815	86	94	80
Lincoln	Town Car	87,817	80	109	87
Cadillac	DeVille 2D	35,727	108	91	99
Mercedes	SEL/SDL Series	22,139	62	181	112
Cadillac	Brougham 4D	39,115	87	172	149
Mercedes	300E	21,462	36	534	194

Results are standardized to the distribution:

Deductible	Youthful Operator	No Youthful Operator
= $0	5%	50%
> $0	5%	40%

Series are ranked within group and subgroup by ascending average loss payment per insured vehicle year. Series with less than 20,000 insured vehicle years of exposure and fewer than 20 claims are not summarized.

Vans, Pickups, and Utility Vehicles

Table 9 shows claim frequencies, average loss payments per claim, and average loss payments per insured vehicle year for 1986-88 model vans, pickups, and utility vehicles relative to the corresponding *all-passenger-vehicle* results. Results vary a great deal from model year to model year; however, almost all of the results in Table 6 are greater than 100, indicating levels of loss above the all-passenger-vehicle average.

Comparisons of Individual Vans, Pickups, and Utility Vehicles

Table 10 summarizes the 1986-88 model year van, pickup, and utility vehicles with the highest average loss payments per insured vehicle year. It also includes the claim frequency and average loss payment per claim results for these models. The results are expressed in relative terms with the value 100 representing the *all-passenger-vehicle* result in each loss category for each model year. The last row in the table gives the actual all passenger vehicle values for each loss category. Table 10 lists vans, pickups, and utility vehicles with a relative average loss payment per insured vehicle year of more than 300 (three times the average for all passenger vehicles) in at least one of the three model years. Each relative average loss payment per insured vehicle year that exceeds 300 is shown in bold print. Table 10 also indicates which individual vehicle series have been subject to substantial vehicle recall campaigns for problems related to noncrash fires. Appendix B contains all 1986-88 car lines which were listed in the National Highway Traffic Safety Administration's Monthly Defect Investigation Reports as having had more than 10,000 vehicles recalled due to noncrash fire problems. Of the eleven series contained in Table 7, six are Ford pickups and utility vehicles, all of which have been part of recall campaigns.

Eight of the eleven series listed are four-wheel drive vehicles, including three Jeep models. Six of the eleven are pickups, four are classified as utility vehicles, and one is a cargo van. The highest average loss payment per insured vehicle year was recorded by the Jeep Grand Wagoneer at almost seven times the average for all passenger vehicles.

Tables 11, 12, and 13 present detailed noncrash fire results for respectively, 1988, 1987, and 1986 model year vans, pickups, and utility vehicles for all individual series with more than 20,000 insured vehicle years of exposure or at least twenty fire claims. It should be noted that the larger the exposure for a series, the greater the confidence that can be placed in the results. The tables contain total exposure (in insured vehicle years), claim frequency (per 10,000 insured vehicle years), average loss payment per claim, and average loss payment per insured vehicle year. The last three variables are presented relative to the

Table 9
Summary of Noncrash Fire Losses
1986-88 Models - Vans, Pickups, and Utility Vehicles

	Vehicle Type	1986 Models	1987 Models	1988 Models
Relative Claim Frequency	Vans	154	137	119
	Small Pickups	112	101	125
	Standard Pickups	187	164	161
	Small Utility Vehicles	241	164	117
	Intermediate Utility Vehicles	104	95	114
	Large Utility Vehicles	118	67	72
Relative Average Loss Payment Per Claim	Vans	128	187	190
	Small Pickups	104	113	102
	Standard Pickups	118	150	168
	Small Utility Vehicles	179	138	151
	Intermediate Utility Vehicles	129	151	137
	Large Utility Vehicles	124	106	74
Relative Average Loss Payment Per Insured Vehicle Year	Vans	197	256	226
	Small Pickups	116	114	128
	Standard Pickups	221	246	269
	Small Utility Vehicles	433	227	176
	Intermediate Utility Vehicles	134	144	156
	Large Utility Vehicles	146	71	53

Table 10
Noncrash Fire Losses 1986-88 Models Vans, Pickups, and Utility Vehicles With the Highest Average Loss Payments Per Insured Vehicle Year

Make & Series	Recall For Vehicle Fires	Relative Claim Frequency 1986	1987	1988	Relative Average Loss Payment Per Claim 1986	1987	1988	Relative Average Loss Payment Per Insured Vehicle Year 1986	1987	1988
Jeep Grand Wagoneer		313			223			**698**		
Ford F-250 4X4	Yes	252	295		120	195		**302**	**575**	
Jeep Wrangler		*	418		*	132		*	**553**	
Ford Bronco II 4X4	Yes	284	112	81	183	218	104	**521**	245	84
Jeep CJ-7		270	*	*	180	*	*	**486**	*	*
Ford Ranger Super Cab 4X4	Yes	243	99		187	99		**455**	98	
Ford F-250 Super Cab	Yes	338			117			**398**		
Chevrolet 10 Series 4X4		268	163	158	117	165	240	**314**	270	**380**
Dodge B250 Cargo Van		116	169		138	217		160	**368**	
Ford F-250	Yes	240			144			**346**		
Ford Ranger 4X4	Yes	229	176		132	163		**302**	288	
All passenger vehicle average = 100										
Actual Results =		6.6**	6.1**	5.0**	$3,448	$3,606	$3,760	$2.30	$2.20	$1.90

Note: Blanks indicate insufficient exposure. Bold print indicates average loss payments per insured vehicle year at least three times the all passenger vehicle average.

* Comparable model not produced for that model year

** Claims per 10,000 insured vehicle years.

results for *all passenger vehicles* of that model year being set to a value of 100. In addition to individual series results, size class and body style group results are also given. Within each body style subgroup, individual vehicle series are listed in ascending order of their relative average loss payments per insured vehicle year.

The 1988 model with the highest relative claim frequency was the Ford F-150 4X4 pickup (170). The lowest frequency among 1988 models with sufficient exposure to include was recorded by the Jeep Cherokee 4X4 (79). For the 1987 models, reported relative claim frequency results ranged from more than four times the all passenger vehicle average for the Jeep Wrangler (418) to about one-half the average for the Toyota small pickup (54). For 1986 the Ford F-250 Supercab pickup recorded the highest relative claim frequency (338) and the Toyota 4Runner pickup had the lowest (19).

The highest reported relative average loss payment per claim for 1988 models was for the Chevrolet 10 series 4X4 pickup (240) and the lowest was for the Ford Ranger pickup (72). For the 1987 models the Chevrolet Astro Cargo Van recorded the highest average loss payment per claim (229) and the Suzuki Samurai, a small utility vehicle, the lowest (62). The 1986 Jeep Grand Wagoneer registered the highest relative average loss payment per claim (223) and the Toyota Xtra Cab Long Bed pickup the lowest (14).

Engine Option Comparison

Many vehicles have a considerable range of engine options available. One approach to assessing the noncrash fire experience of various engine options is to compare the percentage of vehicles equipped with a certain engine option with the percentage of noncrash fire claims accounted for by vehicles with that engine option. This comparison was made for all models of two popular makes (Chevrolet and Ford) with sufficient exposure for individual engine options for the 1987 model year.

Approximately 19 percent of the 1987 model Chevrolet passenger vehicles contained in the HLDI data base were equipped with the 5.0 liter V-8 engine option. These V-8 engine equipped vehicles accounted for over 35 percent of the noncrash fire claims filed for 1987 Chevrolets. Similarly, about 14 percent of 1987 Chevrolet vans, pickups, and utility vehicles were equipped with the same 5.0 liter V-8 and these vehicles accounted for 44 percent of the noncrash fire claims.

For the 1987 Ford passenger vehicles, about 6 percent were equipped with the 3.8 liter V-6 engine yet these vehicles accounted for 12 percent of the noncrash fire claims. As with the Chevrolet vans, pickups, and utility vehicles, a popular Ford truck engine option was the 5.0 liter V-8. This engine was installed in about 19 percent of Ford vans, pickups, and utility vehicles but accounted for 27 percent of the noncrash fire claims.

Table 11
Noncrash Fire Losses, Comprehensive Coverages
1988 Models - Vans, Pickups, And Utility Vehicles

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Payment Per Insured Vehicle Year
All	All	991,406	134 = 6.7	141 = $5,297	188 = $3.60
		VANS			
All Vans		82,269	119	190	226
		PICKUPS			
Small Pickups		346,937	125	102	128
Toyota	Standard Bed	23,560	86	90	77
Ford	Ranger	55,934	110	72	79
Chevrolet	S10	45,096	134	93	124
Standard Pickups		294,253	161	168	269
Ford	F-150 (1/2-3/4T)	49,026	119	133	158
Ford	F-150 (1/2-3/4T) 4x4	27,215	170	102	174
Chevrolet	10 Series (1/2T)	66,598	168	119	200
Chevrolet	10 Series (1/2T) 4x4	29,034	158	240	380
		UTILITY VEHICLES			
Small Utility Vehicles		84,429	117	151	176
Ford	Bronco II 4x4	32,200	81	104	84
Intermediate Utility Vehicles		163,000	114	137	156
Jeep	Cherokee 4x4	41,885	79	114	90
Chevrolet	T10 Blazer 4x4	28,628	137	130	178
Large Utility Vehicles		20,515	72	74	53

Results are standardized to the distribution:

Deductible	Youthful Operator	No Youthful Operator
= $0	5%	50%
> $0	5%	40%

Series are ranked within group and subgroup by ascending average loss payment per insured vehicle year. Series with less than 20,000 insured vehicle years of exposure and fewer than 20 claims are not summarized.

Table 12

Noncrash Fire Losses, Comprehensive Coverages
1987 Models - Vans, Pickups, and Utility Vehicles

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Pay-Ment Per Insured Vehicle Year
All	**All**	**2,030,876**	**122** **= 7.4**	**137** **= $4,947**	**168** **= $3.70**
		VANS			
All Vans		**225,173**	**137**	**187**	**256**
Ford	E-150 Econoline (1/2-3/4T	51,382	178	139	248
Chevrolet	Astro Cargo Van	25,794	118	229	271
Chevrolet	Chevy Van (3/4T)	40,403	154	188	292
Dodge	B250 Cargo Van	23,706	169	217	368
		PICKUPS			
Small Pickups		**884,939**	**101**	**113**	**114**
Mazda	Standard Bed	66,026	61	88	54
Nissan	Standard Bed	68,779	65	85	56
Toyota	Standard Bed	63,490	54	141	76
Dodge	Ram50	24,921	82	97	80
Mazda	Cab Plus	36,947	84	113	96
Ford	Ranger Super Cab 4x4	20,793	99	99	98
Ford	Ranger Super Cab	30,657	106	100	106
Chevrolet	S10	89,117	136	88	121
Chevrolet	T10 4x4	24,564	114	112	128
Ford	Ranger	94,535	105	122	129
Dodge	Dakota (1/2T)	58,566	127	107	136
Toyota	Standard Bed 4x4	39,224	93	169	158
Dodge	D150 (1/2T)	29,063	153	106	163
Ford	Ranger 4x4	27,677	176	163	288
Standard Pickups		**370,054**	**164**	**150**	**246**
Toyota	4Runner	23,073	83	113	94
Chevrolet	10 Series (1/2T)	57,803	138	138	191
Ford	F-150 (1/2-3/4T)	80,985	158	129	205
Ford	F-150 (1/2-3/4T) 4x4	38,627	190	134	254
Chevrolet	10 Series (1/2T) 4x4	29,005	163	165	270
Ford	F-250 (3/4T) 4x4	14,876	295	195	575

Table 12 – 1987 Models (Cont'd)

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Pay-Ment Per Insured Vehicle Year
		UTILITY VEHICLES			
Small Utility Vehicles		**180,500**	**164**	**138**	**227**
Suzuki	Samurai	40,438	166	62	104
Ford	Bronco II 4x4	60,781	112	218	245
Jeep	Wrangler	27,583	418	132	553
Intermediate Utility Vehicles		**331,251**	**95**	**151**	**144**
Nissan	Pathfinder	26,553	72	114	82
Jeep	Cherokee 4x4	61,864	86	113	97
Chevrolet	S10 Blazer	35,599	77	127	99
Chevrolet	T10 Blazer 4x4	73,568	77	128	99
Ford	Bronco	23,992	133	146	194
Large Utility Vehicles		**38,956**	**67**	**106**	**71**

Results are standardized to the distribution:

Deductible	Youthful Operator	No Youthful Operator
= $0	5%	50%
> $0	5%	40%

Series are ranked within group and subgroup by ascending average loss payment per insured vehicle year. Series with less than 20,000 insured vehicle years of exposure and fewer than 20 claims are not summarized.

Table 13
Noncrash Fire Losses, Comprehensive Coverages
1986 Models - Vans, Pickups, and Utility Vehicles

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Pay-Ment Per Insured Vehicle Year
All	**All**	**2,930,061**	**141** **= 9.3**	**121** **= $4,169**	**171** **= $3.90**
		VANS			
All Vans		**347,809**	**154**	**128**	**197**
Ford	Aerostar Cargo Van	21,990	101	88	89
Dodge	B250 Cargo Van	28,746	116	138	160
Toyota	Cargo Van	25,658	100	184	184
Ford	E-150 Econoline (1/2-3/4T	77,760	242	86	207
Chevrolet	Astro Cargo Van	31,999	155	142	220
Chevrolet	Chevy Van (3/4T)	56,709	137	178	245
		PICKUPS			
Small Pickups		**1,200,087**	**112**	**104**	**116**
Toyota	Xtra Cab Long Bed	22,504	34	14	5
Mazda	Cab Plus	29,639	52	33	17
Dodge	Ram50	51,818	109	50	55
Mitsubishi	Standard Bed	21,320	53	104	55
Mazda	Long Bed	36,234	99	58	57
Nissan	Standard Bed	76,982	50	116	58
Toyota	Standard Bed	93,589	63	92	58
Mazda	Standard Bed	94,796	96	80	77
Nissan	King Cab	31,206	55	149	83
Dodge	D150 (1/2T)	46,360	155	59	91
Chevrolet	S10	101,942	96	97	93
GMC	S15	20,053	154	63	97
Toyota	Xtra Cab 4x4	32,225	77	134	103
Isuzu	Standard Bed	42,205	108	96	104
Toyota	Long Bed (1/2T)	29,219	112	100	112
Toyota	Standard Bed 4x4	60,046	105	135	142
Chevrolet	T10 4x4	27,584	122	123	149
Nissan	King Cab 4x4	24,810	100	158	158
Ford	Ranger	127,625	161	103	166
Ford	Ranger Super Cab	41,435	209	125	262
Ford	Ranger 4x4	39,022	229	132	302
Ford	Ranger Super Cab 4x4	20,465	243	187	455
Standard Pickups		**726,073**	**187**	**118**	**221**
Toyota	4Runner	25,608	19	173	33
Ford	F-150 (1/2-3/4T)	178,374	173	105	181

Table 13 – 1986 Models (Cont'd)

Make	Series	Total Exposure (Insured Vehicle Years)	Relative Claim Frequency	Relative Average Loss Payment Per Claim	Relative Average Loss Pay-Ment Per Insured Vehicle Year
GMC	1500 Series (1/2T)	33,599	143	133	190
Chevrolet	10 Series (1/2T)	133,786	148	130	192
Chevrolet	20 Series (3/4T) 4x4	15,881	194	115	225
Ford	F-150 (1/2-3/4T) 4x4	73,094	208	117	242
Chevrolet	20 Series (3/4T)	16,514	194	126	245
Ford	F-150 Super Cab	31,626	204	131	266
Ford	F-250 (3/4T) 4x4	35,662	252	120	302
Chevrolet	10 Series (1/2T) 4x4	52,481	268	117	314
Ford	F-250 (3/4T)	28,775	240	144	346
Ford	F-250 Super Cab	15,478	338	117	398
		UTILITY VEHICLES			
Small Utility Vehicles		**155,399**	**241**	**179**	**433**
Jeep	CJ-7	23,167	270	180	486
Ford	Bronco II 4x4	103,892	284	183	521
Intermediate Utility Vehicles		**442,848**	**104**	**129**	**134**
Isuzu	Trooper II 4x4	60,082	72	119	86
Chevrolet	T10 Blazer 4x4	83,462	63	140	88
Chevrolet	S10 Blazer	37,311	86	113	97
Jeep	Cherokee 4x4	92,505	127	92	117
Ford	Bronco	47,898	121	113	136
Chevrolet	K10 Blazer (1/2T)	29,861	96	205	196
Jeep	Grand Wagoneer	11,807	313	223	698
Large Utility Vehicles		**57,843**	**118**	**124**	**146**
Chevrolet	Suburban (1/2T)	23,082	122	161	196

Results are standardized to the distribution:

Deductible	Youthful Operator	No Youthful Operator
= $0	5%	50%
> $0	5%	40%

Series are ranked within group and subgroup by ascending average loss payment per insured vehicle year. Series with less than 20,000 insured vehicle years of exposure and fewer than 20 claims are not summarized.

Appendix A Definitions

Average Loss Payment per Claim - The total of all loss payments made for the claims for a group of vehicles, divided by the number of claims paid.

Average Loss Payment per Insured Vehicle Year - For a group of vehicles, the product of Claim Frequency and Average Loss Payment per Claim, expressed as dollars per insured vehicle year. *It should be noted that this definition differs from the commonly used insurance term, pure premium, but yields similar results.*

Claim Frequency - The number of claims for a group of vehicles, divided by the exposure for that group.

Deductible Amount - That portion of the comprehensive loss borne by the policyholder.

Exposure - The time interval an individual vehicle is insured. Exposure for a group of vehicles is expressed in units of insured vehicle years.

Loss Payment - That portion of the comprehensive loss borne by the insurer; in general, the total comprehensive loss minus the deductible amount.

Operator Age Group - The factor which distinguishes those vehicles whose rated driver is youthful from those vehicles whose rated driver is not youthful *(see Youthful Operator).*

Rated Driver - The driver who, for insurance purposes, is considered to represent the greatest loss potential for the insured vehicle.

Vehicle Classifications - There are four vehicle classes, defined as follows:

1. **Passenger Vehicles** - There are four major body style groupings of passenger vehicles -- regular two-door models, regular four-door models, station wagons and passenger vans, and sports and specialty models. Sports and specialty models include two-seater cars, all convertibles, all midsize and large cars with two or fewer designated rear seating positions, and all luxury cars. Each body style group is further divided into size class subgroups based on wheelbase (rounded to nearest inch) defined as follows:

    Small - Vehicles with wheelbases less than or equal to 99 inches.

    Midsize - Vehicles with wheelbases greater than 99 inches and less than or equal to 109 inches.

    Large - Vehicles with wheelbases greater than 109 inches.

2. **Vans** - Fully enclosed vehicles with either no hood or a very short hood, in which the engine is placed at least 50 percent behind the windshield. The driver's position is usually well forward, nearly beside the engine, usually within the forward 25 percent of the wheelbase. These vehicles are designed for cargo access door and rear door. The cargo area is not separated from the passenger area - both are enclosed under the same roof.

3. **Pickups** - Cargo-carrying vehicles, usually on a truck chassis, with an enclosed cab and a separate open cargo area. The open cargo area generally is a box with raised sides with an opening tailgate. There are also a small number of auto pickups which are similar to regular pickups except that they are built on a passenger car chassis. Pickups are further divided into two subgroups based on curb weight -- small pickups (less than 3,500 pounds) and standard pickups (3,500 pounds or more).

4. **Utility Vehicles** - Vehicles built on a heavy-duty chassis capable of off road use. They are of conventional construction with the driver behind the engine. The cargo and passenger areas are integral with the driver area. Many of these vehicles are equipped with soft or removable tops. Frequently, these vehicles are equipped with four-wheel drive. Utility vehicles are further divided into three subgroups based on wheelbase - small utility vehicles (less than 100 inches), intermediate utility vehicle (from 100 to 120 inches), and large utility vehicles (greater than 120 inches).

Vehicle Identification Number (VIN) - A code, variously comprising both numbers and letters; normally, 8 to 17 characters in length, assigned to each vehicle by its manufacturer. The VIN uniquely identifies the vehicle within at least a ten-year time span and, in recent model year vehicles, almost always contains coding which identifies the make, series, model year, and other characteristics of each vehicle.

Vehicle Series - A name denoting a family of vehicles, within a make, with the same wheelbase and a degree of commonality in construction such as body, chassis, etc.

Youthful Operator - For the purposes of this report, all males (married or single) under 25 years of age and all unmarried females under 25 years of age.

Appendix B

Noncrash Fire Related Vehicle Recall Campaigns of 1986-88 models Involving >10,000 Vehicles

Manufacturer	Make/Model	Model Year(s)	Number of Vehicles
Porsche	944	1986	17,717
	944 Turbo	1986	
Volkswagen	Audi 5000S	1985-86	80,710
General Motors	Buick Electra /Park Ave.	1986	88,668
Volkswagen	Golf	1986	23,000
	GTI	1986	
Isuzu	I-Mark	1985-86	28,509
General Motors	Chevy Spectrum	1985-86	108,268
Ford	E-350 Vans & cutaway chassis (ambulance)	1983-87	16,000
Ford	Ford Taurus Mustang T-Bird Crown Victoria Escort Econoline Ranger Bronco II F-Series Aerostar Bronco Mercury Sable Cougar Grand Marquis Lynx Lincoln Town Car Mark II Continental	1986-87	3,600,000
Ford	E-250 Pickup	1983-87	188,000
	E-350 Pickup	1983-87	
Volkswagen	Audi 5000T	1984-88	25,000

Manufacturer	Make/Model	Model Year(s)	Number of Vehicles
Volkswagen	Vanagon	1986-87	12,000
	Camper	1986-87	
General Motors	Buick Rivera	1986-87	65,136
	Olds Toronado	1986-87	
Ford	Aerostar	1987-88	60,000
Chrysler	Chrysler	1985-87	580,000
	New Yorker		
	Laser		
	Le Baron GTS		
	Le Baron Coupe		
	Dodge		
	600		
	Daytona		
	Lancer		
	Omni GTI		
	Shelby Charger		
	Shadow		
	Plymouth		
	Caravelle		
	Sundance		
Ford	E-250 Pickup	1983-87	14,975
	E-350 Pickup	1983-87	
Ford	Aerostar	1986	
	Bronco II	1986	
	Ranger Super Cab	1986	
Volkswagen	Audi	1984-89	35,000
	5000		
	Quattro		
Ford	Lincoln Town Car	1987	19,811
Saab	900S	1986-87	15,446
	900 Turbo		
Nissan	Van	1987	10,025
Ford	Crown Victoria	1987	11,119
	Merc. Grand Marquis	1987	
	Lincoln Town Car	1987	

Manufacturer	Make/Model	Model Year(s)	Number of Vehicles
General Motors	Pontiac Bonneville Olds 98 Delta 88 Buick Park Ave. Buick Le Sabre	1987 1987	479,715
Nissan	Pulsar MX	1987-88	61,000
General Motors	Buick Skylark Olds Calais Pontiac Grand Am	1987	22,300
Saab	900	1987-88	70,000
Subaru	Passenger Vehicles	1987	57,000
Chrysler	Fifth Avenue Plymouth Grand Fury Dodge Diplomat	1988	12,000
Mazda	626 MX6	1988	33,868
Honda	Prelude S Prelude SI	1988	66,239
General Motors	Pontiac LeMans	1988	72,616
Ford	Lincoln Continental	1988	26,000

Source: National Highway Traffic Safety Administration, Monthly Defect Investigation Reports (January 1986 - July 1989)

Selected Publications

R88-2 *Insurance Collision Report, Passenger Cars, Vans, Pickups, and Utility Vehicles, 1988 Models During Their First Year, 1987 Models During their First Two years, 1986 Models During Their First Three Years*, December 1988.

R89-1 *Insurance Collision Report, Initial Results for 1989 Automobiles*, August 1989.

I88-1 *Insurance Injury Report, Passenger Cars, Vans, Pickups, and Utility Vehicles; 1986-1988 Models*, September 1989.

T88-1 *Insurance Theft Report; Passenger Cars, Vans, Pickups, and Utility Vehicles: 1988 Models During Their First Year, 1987 Models During Their First Two Years, 1986 Models During Their First Three Years*, May 1989.

A-5 *Automobile Insurance Losses, Collision Coverages; Relationships Between Losses and Vehicle Body Style, 1974 and 1975 Models*, December 1975.

A-7 *Automobile Insurance Losses, Collision Coverages; Annual Increases and Seasonal Variations 1972, 1973, 1974 and 1975 Models*, June 1976.

A-9 *Automobile Insurance Losses, Collision Coverage; A Comparison of Collision Claim Size Distributions for 1974-76 Models*, November 1977.

A-11 *Automobile Insurance Losses, Collision Coverage; The Consistency of the Loss Experience of Specific Vehicles Produced in Several Years, 1975 to 1978 Models*, June 1979.

A-12 *Automobile Insurance Losses, Collision Coverage; An Assessment of the Effects of the Federal Safety Bumper Standard on the Losses for 1972 Through 1978 Models*, June 1980.

A-13 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverage; The Effects of Car Size on Crash Losses, 1977-1980 Models*, May 1981.

A-14 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverage; Comparisons of the Loss Experience of Two- and Four-Door Cars, 1978, 1979, and 1980 Models*, May 1981.

A-16 *Automobile Insurance Losses, Collision Coverages; The Frequency of Claims Involving Salvage; Subcompact and Compact Cars; 1980 Models*, January 1982.

A-17 *Insurance Losses, Comprehensive Coverage; Non-Crash Fire Losses; 1979-1980 Models*, February 1982.

A-18 *Insurance Losses, Theft Coverage; The Distribution of Theft Loss Payment Amounts; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1981 Models During Their First Year, 1980 Models During Their First Two Years, 1979 Models During Their First Three Years*, June 1982.

A-19 *Insurance Losses, Theft Coverages; A Comparison of the Theft Loss Experience of General Motors Passenger Cars With and Without Factory-Installed Theft Deterrent Systems; 1980-1981 Models*, January 1983.

A-20 *Insurance Losses, Collision Coverages, A Comparison of the Collision Loss Experience of Subaru Models with 5 and 2.5 MPH Bumpers*, April 1983.

A-21 *Insurance Losses, Personal Injury Protection Coverages, Injury Claim Frequencies for Volkswagen Rabbits with Automatic and Manual Seat Belts, 1981, and 1982 Models*, April 1984.

A-22 *Insurance Losses, Collision Coverages, An Analysis of Salvage Credits, 1977 Through 1982 Model Year Cars*, July 1984.

A-23 *Injury and Collision Losses by Engine Option, Selected 1983 Models*, October 1985.

A-24 *Comparison of the Insurance Loss Experience of Unibody and Frame Construction Cars After a Collision Repair, 1981-82 Models*, October 1985.

A-25 *Relationships Between Losses and Vehicle Density, 1982-84 Models*, October 1985.

A-26 *Consistency of Model Year Injury Claim Frequency Results for Selected 1981-1983 Models*, May 1986.

A-27 *A Preliminary Evaluation of New York and New Jersey Insurance Injury Claim Results Before and After Enactment of Mandatory Seat Belt Legislation; 1983-85 Models*, May 1986.

A-28 *Insurance Injury Loss Experience in Eight States with Seat Belt Laws, 1983-86 Models*, July 1988.

A-29 *Insurance Losses Based on Garaging Location, 1985-87 Models*, June 1988.

A-30 *Automobile Insurance Losses, A Comparison of California and National Results*, May 1988.

A-31 *The Effect of Vehicle Component Parts Marking on Theft*, December 1989.

A-32 *Automobile Theft Losses By Size of Claim and in Selected States*, December 1989.

Sponsoring Companies

Aetna Casualty & Surety Company of America Aetna Casualty & Surety Company of Illinois Aetna Casualty and Surety Company AgSecurity Insurance Company Alaska Pacific Assurance Company Alfa Mutual General Insurance Company Alfa Mutual Insurance Company Alliance Assurance Company Ltd. Allied Insurance Company Allstate Indemnity Company Allstate Insurance Company Allstate Property and Casualty Insurance Company American & Foreign Insurance Company American Casualty Company American Economy Insurance Company American Family Mutual Insurance Company American General Fire & Casualty Company American Lloyds Insurance Company American Manufacturers Mutual Insurance Company American Motorist Insurance Company American Protection Insurance Company American States Preferred Insurance Company American States Insurance Company American States Insurance Company of Texas Amica Mutual Insurance Company Assurance Company of America Athena Assurance Company Atlanta Casualty Company Atlantic Employers Insurance Company Atlas Assurance Company of America Automobile Insurance Company of Hartford Bankers Standard Insurance Company Bituminous Casualty Corporation Bituminous Fire & Marine Insurance Company Boston Old Colony Insurance Company Brotherhood Mutual Insurance Company Buckeye Union Insurance Company CIGNA Fire Underwriters Insurance Company CIGNA Insurance Company of the Midwest CIGNA Insurance Company of Illinois CIGNA Insurance Company of Ohio CIGNA Insurance Company of Texas CIGNA Property and Casualty Insurance Company CIGNA Insurance Company CUMIS Insurance Society Inc. Camden Fire Insurance Association Casualty Insurance Company Century Indemnity Company Charter Oak Fire Insurance Company Chubb Insurance Company of New Jersey Chubb Lloyds Insurance Company of Texas Church Mutual Insurance Company Classic Insurance Company Colonial Insurance Company Columbia Casualty Company Commercial Insurance Company of Newark Concord General Mutual Insurance Company Continental Casualty Company Continental Insurance Company Continental Insurance Company of New Jersey Cotton States Mutual Insurance Company Country Casualty Insurance Company Country Mutual Insurance Company Country Preferred Insurance Company Countrywide Insurance Company Covenant Insurance Company Criterion Casualty Company Economy Fire and Casualty Company Empire Insurance Company Employers Insurance of Wausau Employers Mutual Casualty Company Erie Insurance Exchange Farm Bureau Mutual Insurance Company Inc. of Kansas Farm Bureau Mutual Insurance Company of Idaho Farm Bureau Mutual Insurance Company of Iowa Farm Bureau Mutual Insurance Company of Nebraska Farmers & Merchants Insurance Company Farmers Automobile Association of Pekin Illinois Farmers Insurance Company Inc. Farmers Insurance Company of Arizona Farmers Insurance Company of Idaho Farmers Insurance Company of Oregon Farmers Insurance Company of Washington Farmers Insurance Exchange Farmers Insurance of Columbus Inc. Farmers Mutual Insurance Company of Nebraska Farmers Texas County Mutual Insurance Company Farmington Casualty Company Farmland Mutual Insurance Company Federal Insurance Company Federal Kemper Insurance Company The Fidelity & Casualty Company of New York Fidelity & Guaranty Insurance Company Fidelity & Guaranty Insurance Underwriters Inc. Fidelity and Deposit Company of Maryland Firemen's Insurance Company of Newark First Fire and Casualty Insurance of Hawaii Inc. First Indemnity Insurance of Hawaii Inc. First Insurance Company of Hawaii Ltd. Foundation Reserve Insurance Company Inc. GEICO General Insurance Company GEICO Indemnity Company General Accident Insurance Company of America The Glens Falls Insurance Company Globe Indemnity Company Gothaer Insurance Company Government Employees Insurance Company Great Northern Insurance Company Great West Casualty Company Green Mountain Insurance Company Inc. Grinnell Mutual Reinsurance Company Guaranty National Insurance Company Halcyon Insurance Company Harbor Insurance Company Harleysville Mutual Insurance Company Hartford Accident and Indemnity Company Hartford Casualty Insurance Company Hartford Fire Insurance Company Hartford Insurance Company of Connecticut Hartford Insurance Company of Illinois Hartford Insurance Company of the Midwest Hartford Insurance Company of the Southeast IDS Property Casualty Insurance Company Illinois Employers Insurance of Wausau Illinois Farmers Insurance Company Indemnity Insurance Company of North America Indiana Farmers Mutual Insurance Company Insurance Company of North America John Deere Insurance Company KFB Insurance Company Inc. Kansas City Fire and Marine Insurance Company Kentucky Central Insurance Company League General Insurance Company Liberty Insurance Corporation Liberty Mutual Fire Insurance Company Liberty Mutual Insurance Company Liberty Northwest Insurance Corporation London Assurance Lumbermens Mutual Casualty Company Maine Bonding and Casualty Company Maryland Casualty Company Mayflower Insurance Company Ltd. Merit Insurance Company Metropolitan Property and Liability Insurance Company Michigan Education Employees Mutual Insurance Company Michigan Mutual Insurance Company Mid-Century Insurance Company Mid-Century Insurance Company of Texas Middlesex Mutual Assurance Company Midwest Mutual Insurance Company Montgomery Mutual Insurance Company Motor Club Insurance Association of Nebraska Motor Club of America Insurance Company Motors Insurance Corporation NWNL General Insurance Company National Casualty Company National Continental Insurance Company National Fire Insurance Company of Hartford National General Fire & Casualty Company National General Insurance Company of Missouri National Grange Mutual Insurance Company National Standard Insurance Company National-Ben Franklin Insurance Company of Illinois Nationwide Agribusiness Insurance Company Nationwide General Insurance Company Nationwide Indemnity Insurance Company Nationwide Mutual Fire Insurance Company Nationwide Mutual Insurance Company Nationwide Property and Casualty Insurance Company New York Underwriters Insurance Company Newark Insurance Company Niagara Fire Insurance Company North Carolina Farm Bureau Mutual Insurance Company North Pacific Insurance Company Northbrook Indemnity Company Northbrook National Insurance Company Northbrook Property and Casualty Insurance Company Northern Insurance Company of New York Northwestern Pacific Indemnity Company Nutmeg Insurance Company Oklahoma Farm Bureau Mutual Insurance Company Oregon Automobile Insurance Company Pacific Employers Insurance Company Pacific Indemnity Company Pacific Insurance Company Pacific Insurance Company Ltd. Pekin Insurance Company Pennsylvania General Insurance Company PEMCO Insurance Company Phoenix Insurance Company Potomac Insurance Company of Illinois Preferred Risk Insurance Company Progressive American Insurance Company Progressive Casualty Insurance Company Progressive County Mutual Insurance Company Progressive Gulf Insurance Company Progressive Mutual Insurance Company Progressive Northern Insurance Company Progressive Northwestern Insurance Company Progressive Southeastern Insurance Company Progressive Specialty Insurance Company Prudential Commercial Insurance Company Prudential General Insurance Company Prudential-LMI Commercial Insurance Company Prudential Property and Casualty Insurance Company Public Employees Mutual Insurance Company Puerto Rican-American Insurance Company Ramsey Insurance Company Ranger Insurance Company Royal Indemnity Company Royal Insurance Company of America Royal Milbank Insurance Companies SECURA Insurance Safeguard Insurance Company St. Paul Fire & Marine Insurance Company St. Paul Fire and Casualty Insurance Company St. Paul Guardian Insurance Company St. Paul Indemnity Insurance Company St. Paul Insurance Company St. Paul Insurance Company of Illinois St. Paul Insurance Company of North Dakota St. Paul Lloyds Insurance Company St. Paul Mercury Insurance Company St. Paul Property and Casualty Insurance Company Scottsdale Insurance Company Sea Insurance Company Ltd. Selective Insurance Company of America Selective Insurance Company of the Southeast Selective Way Insurance Company Sentinel Insurance Company Ltd. Shelter General Insurance Company Shelter Mutual Insurance Company Shield Insurance Company Southern Guaranty Insurance Company Southern Heritage Insurance Company Standard Fire Insurance Company State Auto Insurance Company State Farm County Mutual Insurance Company of Texas State Farm Fire and Casualty Company State Farm General Insurance Company State Farm Mutual Automobile Insurance Company Sun Insurance Office Ltd. Texas Employers' Insurance Association Texas Farmers Insurance Company Texas Pacific Indemnity Company Transamerica Indemnity Company Transamerica Insurance Company Transamerica Insurance Company of Michigan Transamerica Insurance Company of Texas Transamerica Insurance Corporation of America Transamerica Premier Insurance Company Transamerica Specialty Insurance Company Transcontinental Insurance Company Transportation Insurance Company Travelers Indemnity Company Travelers Indemnity Company of America Travelers Indemnity Company of Illinois Travelers Indemnity Company of Rhode Island Travelers Insurance Company Truck Insurance Exchange Twin City Fire Insurance Company USAA Casualty Insurance Company United Financial Casualty Insurance Company United Services Automobile Association United States Fidelity and Guaranty Company Utica Mutual Insurance Company Valley Forge Insurance Company Valiant Insurance Company Vigilant Insurance Company Wausau Underwriters Insurance Company Western Casualty & Surety Company

AU 200 4.25

Insurance Special Report
A-34

An Analysis of Total Losses
1984-88 Models

HIGHWAY
LOSS
DATA
INSTITUTE

Permission to quote from or to reproduce material from this publication is granted when due acknowledgement is made.

Highway Loss Data Institute -- 1005 North Glebe Road -- Arlington, Virginia 22201
Research Report HLDI A-34--May 1990

Copyright 1990/HLDI

The membership of the Highway Loss Data Institute Board of Directors and the Technical Resource Committee represents insurance companies that are supplying data to HLDI. Financial support for HLDI is provided through the Insurance Institute for Highway Safety, which in turn is supported by most automobile insurers either directly or through their trade associations.

Board of Directors

G.C. Klingman, Chairman
The Travelers Insurance Companies

M. Albaum
Prudential Property and Casualty Insurance Company

H.L. Cohen
Government Employees Insurance Company

J.B. Conners
Liberty Mutual Insurance Company

S.F. Goldberg
United Services Automobile Association

T.A. Hoyt
Nationwide Mutual Insurance Company

R.S. Lawson
Alliance of American Insurers

S.D. Marks
Aetna Life and Casualty

D.F. Snyder
American Insurance Association

W.W. Sorenson
State Farm Mutual Automobile Insurance Company

J.S. Trees
Allstate Insurance Company

T.E. Troxel
National Association of Independent Insurers

B. O'Neill, ex officio
Highway Loss Data Institute

Technical Resource Committee

M. Albaum, Chairman
Prudential Property and Casualty Insurance Company

H.L. Cohen
Government Employees Insurance Company

R.O. Elder
Highway Loss Data Institute

S.F. Goldberg
United Services Automobile Association

T.A. Hoyt
Nationwide Mutual Insurance Company

G.C. Klingman
The Travelers Insurance Companies

S.D. Marks
Aetna Life and Casualty

R.T. Muleski
Liberty Mutual Insurance Company

B. O'Neill
Highway Loss Data Institute

W.W. Sorenson
State Farm Mutual Automobile Insurance Company

J.S. Trees
Allstate Insurance Company

CONTENTS

Summary 1

Introduction 2

Results and Discussion 3

Comparison of Results by Model Year 3

Comparison of Results by Vehicle Size 4

Comparison of Results by Vehicle Size and Body Style 4

Comparison of Results by Vehicle Series 5

Appendix A 15

Table A-1 Total Losses as a Percentage of All Collision Claims By Size Class and Body Style for 1984-88 Model Year Passenger Cars 15

Table A-2 Percent of Collision Dollars Paid for Total Losses By Size Class and Body Style for 1984-88 Model Year Passenger Cars 16

Table A-3 Total Losses as a Percentage of All Collision Claims By Vehicle Type for 1984-88 Model Year Vans, Pickups, and Utility Vehicles 17

Table A-4 Percent of Collision Dollars Paid for Total Losses By Vehicle Type for 1984-88 Model Year Vans, Pickups, and Utility Vehicles 17

Appendix B Definitions 18

Selected Publications 19

Table 1 1988 Model Year Passenger Cars With the Highest Percent of Total Losses 6

Table 2 1988 Model Year Passenger Cars With the Lowest Percent of Total Losses 6

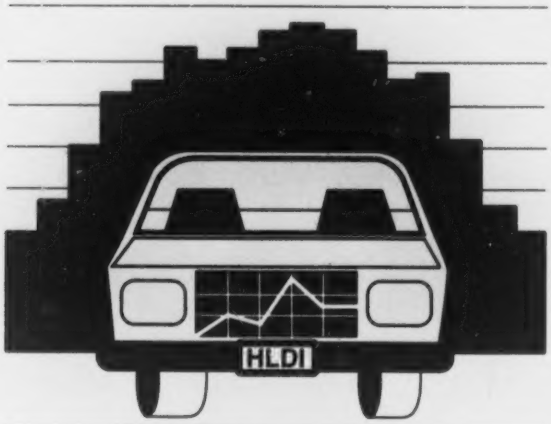
Table 3 1988 Model Year Vans, Pickups, and Utility Vehicles With the Highest Percent of Total Losses 7

Table 4 1988 Model Year Vans, Pickups, and Utility Vehicles With the Lowest Percent of Total Losses 7

Table 5 Total Losses -- 1988 Passenger Cars 8

Table 6 Total Losses -- 1988 Vans, Pickups, and Utility Vehicles 13

Figure 1	Total Losses As A Percentage of All Collision Claims By Vehicle Type and Model Year	2
Figure 2	Percentage of Collision Dollars Paid For Total Losses By Vehicle Type and Model Year	2
Figure 3	Total Losses As A Percentage of All Collision Claims By Size Class and Model Year	3
Figure 4	Percentage of Collision Dollars Paid For Total Losses By Size Class and Model Year	3
Figure 5	Total Losses As A Percentage of All Collision Claims -- 1988 Model Year Passenger Cars	4
Figure 6	Percentage of Collision Dollars Paid For Total Losses -- 1988 Model Year Passenger Cars	4
Figure 7	Total Losses As A Percentage of All Collision Claims -- 1988 Model Year Vans, Pickups, and Utility Vehicles	5
Figure 8	Percentage of Collision Dollars Paid For Total Losses -- 1988 Model Year Vans, Pickups, and Utility Vehicles	5



SUMMARY

This Highway Loss Data Institute (HLDI) special report presents information on total losses under collision coverages involving 1984-88 passenger cars, vans, pickups, and utility vehicles. Following a collision that results in significant damage to an insured vehicle, the vehicle is either repaired and returned to its owner or it is declared a total loss. In the latter case, the owner recovers from his insurer the replacement cost of his vehicle, less the amount of his deductible, and the vehicle is then the property of the insurer who, in turn, recovers whatever is available in the salvage market. It is this salvage recovery process that permits HLDI to identify within its data systems the vast majority of total losses.[1]

Principal Findings

- Overall, claims representing total losses have increased from about 4 percent of all collision claims for 1984 models to about 6 percent for 1988 models. For the more recent model years, more than one-fourth of all collision loss dollars were paid for total losses.
- Total losses are strongly related to vehicle size with smaller vehicles experiencing much higher rates of total losses. The smaller vehicles have also experienced the largest increases in the rates of total losses from the 1984 to 1988 model years.
- Small foreign two-door cars and small pickups have the highest percentage of total losses and the highest percentage of collision dollars paid for total losses. Large sports and specialty cars and large vans have the lowest percentage of total losses and percentage of collision dollars paid for total losses.
- Among 1988 model year passenger cars, the Yugo has the highest percentage of total losses (approximately 20 percent) and the highest percentage of collision dollars paid for total losses (nearly 43 percent). The Lincoln Town Car has the lowest percentage of total losses (less than 2 percent) and the lowest percentage of collision dollars paid for total losses (approximately 13 percent).
- Although there have been steady increases in total losses for the five model years analyzed, the relationships among vehicle size and body style are extremely consistent.

---

[1] There may be rare instances where either the damaged vehicle has no salvage value or the owner elects to keep his "totalled" vehicle, in which case the amount of his settlement is adjusted accordingly. In these cases, there will be no salvage recovery record and, to the extent that this occurs, total losses in this report are understated.

INTRODUCTION

The Highway Loss Data Institute (HLDI) is a nonprofit public service organization that gathers, processes, and publishes insurance data concerned with human and economic losses resulting from owning and operating motor vehicles, especially the ways such losses vary among different kinds of vehicles.

This report presents information on total losses under collision coverages involving 1984-88 model year passenger cars, vans, pickups, and utility vehicles. All results are based on collision coverage claims for vehicles during their first two years of availability. A vehicle that is so severely damaged that the cost to an insurer to repair it is greater than the cost to the insurer not to repair it is declared a total loss. There are three cost factors considered in making this determination: the estimated collision repair cost, the replacement value of the vehicle (prior to damage), and the salvage value of the damaged vehicle. When the repair cost exceeds the replacement value less the salvage value, insurers generally pay the insured the replacement value of the vehicle, adjusted for whatever deductibles apply, and then sell the damaged vehicle for salvage. This, in terms of HLDI claim processing, generates two collision claim transactions, one indicating the payment to the insured and the other identifying the amount of the salvage recovery on the part of the insurer. Total collision losses are thus identified in the HLDI data systems by the presence of a salvage recovery transaction.

This report is based on collision loss data supplied by 10 insurers: Aetna, Allstate, Fireman's Fund, Kemper, Nationwide, Prudential, Safeco, State Farm, Travelers, and USAA.

It is intended that the dissemination of this and other HLDI reports will contribute to research into ways for reducing vehicle related damage to people and property and that it will inform the public about differences in the loss experience produced by different kinds of vehicles.

Figure 1
Total Losses As A Percentage of All Collision Claims By Vehicle Type and Model Year

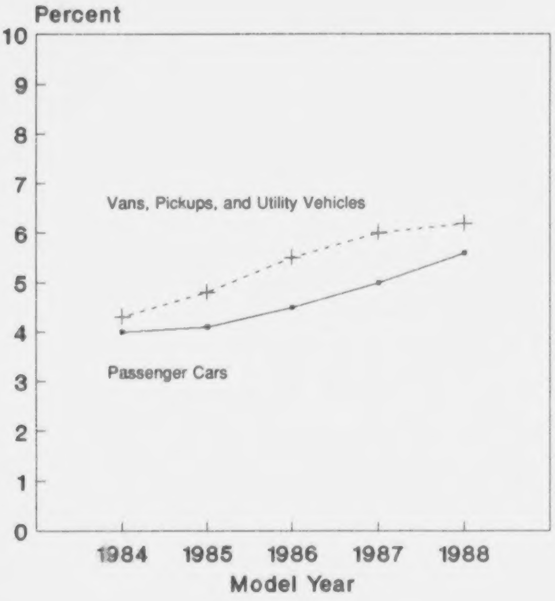
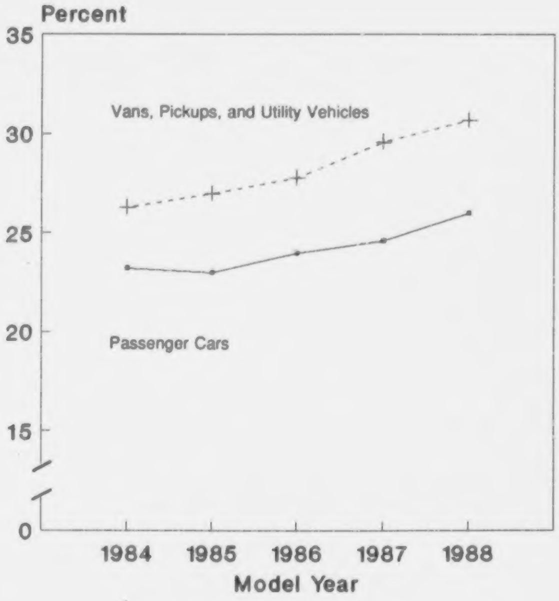


Figure 2
Percentage of Collision Dollars Paid For Total Losses By Vehicle Type and Model Year



RESULTS AND DISCUSSION

This report focuses on two aspects of total losses. The first examines trends in total losses over a five-year period by analyzing collision claim data for 1984 through 1988 model year vehicles during their first two years of availability. Results are presented indicating the proportion of collision claims that are total losses and also the share of all insurance payments that are paid for total losses. The second part of the report analyzes total losses in more detail for the 1988 model year only and summarizes results by size class and body style for passenger cars and by vehicle type for vans, pickups, and utility vehicles. It also presents results for individual vehicle series and highlights those with particularly high and particularly low total loss results.

All collision coverage claims during the first two years of availability for each model year were examined. Those claims that included salvage recovery transactions were used to identify vehicles that had been declared as total losses. These claims and their payments were used to calculate the percentage of all collision claims that are total losses and the percentage of all collision dollars paid by insurers for total losses.

Comparison of Results by Model Year

Figure 1 shows the percentage of collision claims that are total losses for 1984-88 model year passenger cars and vans, pickups, and utility vehicles during their first two years of availability. It shows a steady increase over these model years in the rate of total losses for both classes of vehicles. Between model years 1984 and 1988, total losses increased from 4.0 percent to 5.6 percent for passenger cars, and from 4.3 percent to 6.2 percent for vans, pickups, and utility vehicles. Figure 2 presents the percentage of all collision dollars that are paid for total losses involving 1984-88 model year vehicles during their first two years. This figure also shows increases, but they are less pronounced. For the 1988 models, 26 percent of all collision payment dollars for passenger cars were paid for total losses and over 30 percent of payments for collision damage to vans, pickups, and utility vehicles involved total losses.

Figure 3
Total Losses As A Percentage of All Collision Claims By Size Class and Model Year

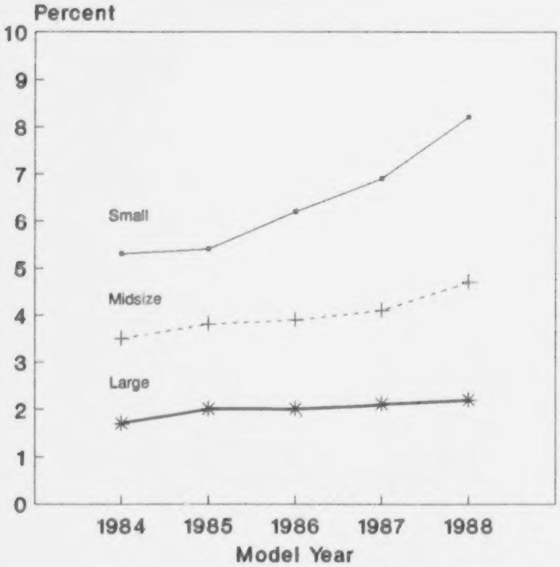
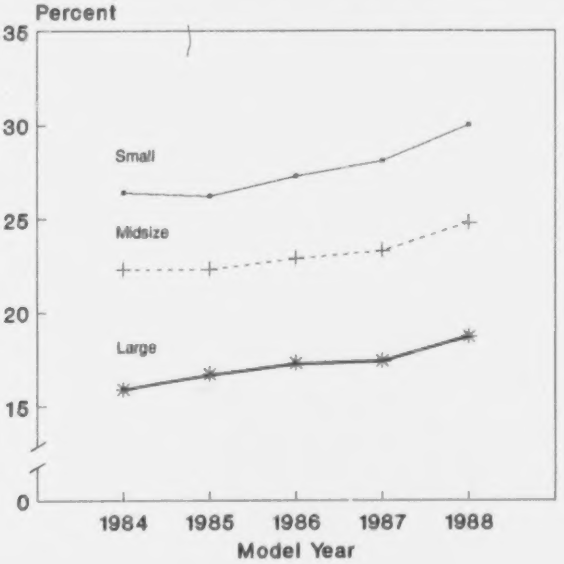


Figure 4
Percentage of Collision Dollars Paid For Total Losses By Size Class and Model Year



Comparison of Results by Vehicle Size

Figure 3 shows the percentage of collision claims that are total losses for 1984-88 passenger cars by size class. A description of the size and body style classifications is given in Appendix B. Figure 3 shows a very pronounced size class effect with small cars registering a higher percentage of total losses than midsize and large cars. This size relationship holds for all five model years. This same size class relationship was evident in an earlier HLDI research report (*An Analysis of Salvage Credits, 1977-82 Model Year Cars, A-22*), which examined this topic for 1977-82 model year cars. The rate of total losses for midsize cars is approximately double that of large cars, and the rate for small cars is over three times the rate for large cars. It is also clear from Figure 3 that the major contribution to the increases in total losses across the model years is from small cars, although each size class has experienced increases.

Figure 4 presents the percentages of all collision dollars paid for total losses involving 1984-88 passenger cars by size class. It also shows a strong size relationship, although somewhat less pronounced because, in general, small cars cost less than large cars. For 1988 models, total losses account for approximately 30 percent of all collision dollars paid for small cars, 25 percent for midsize cars, and just under 20 percent for large cars.

Comparison of Results by Vehicle Size and Body Style

The 1988 model year, the most recent in this study, was chosen to examine total losses in more detail. Figure 5 shows the percentage of collision claims that are total losses for 1988 model year passenger cars by body style and size class. It shows that the size relationship illustrated by Figure 3 is maintained for all body styles and that small two-door cars have the highest rate of total losses. Large sports and specialty cars have the lowest rate. The rate of total losses for small two-door cars is more than five times that of large sports and specialty cars.

Figure 6 shows the percentage of collision dollars that are paid for total losses for 1988 model year passenger cars. Nearly one-third of all collision dollars paid for small two-door cars involve total losses.

Figure 5
Total Losses As A Percentage of All Collision Claims – 1988 Model Year Passenger Cars

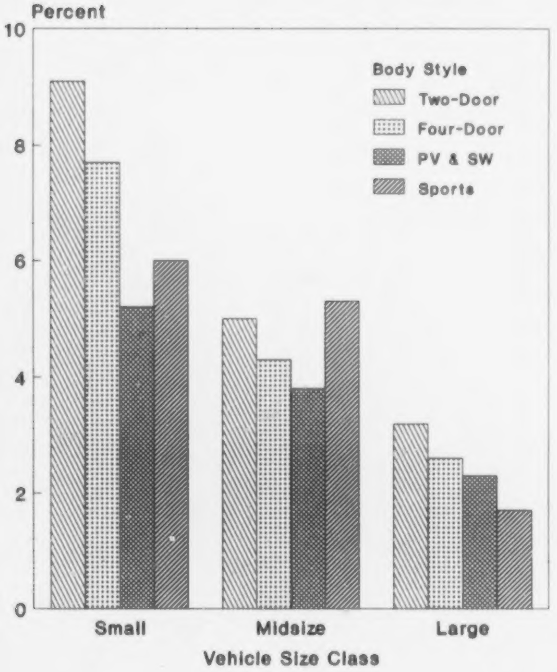
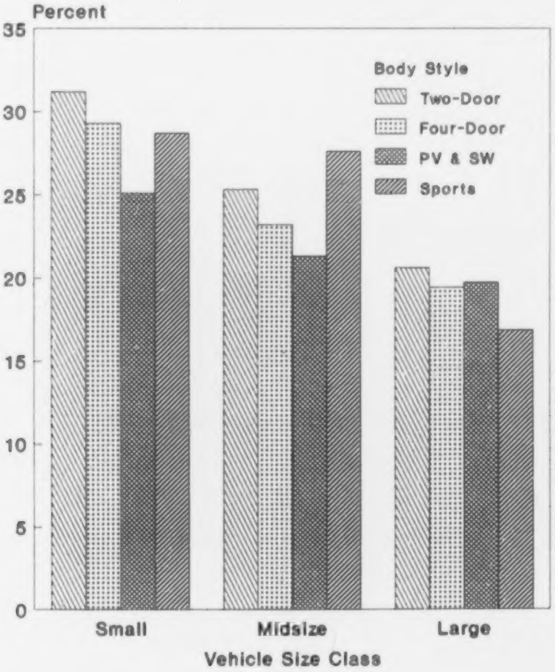


Figure 6
Percentage of Collision Dollars Paid For Total Losses – 1988 Model Year Passenger Cars



Results for 1988 model year vans, pickups, and utility vehicles are presented in Figures 7 and 8. The percentage of total losses presented in Figure 7 shows a very pronounced size relationship similar to that for passenger cars. Vans, most of which are large vehicles, have the lowest percent of total losses, and small pickups and small utility vehicles have the highest. The rate of total losses ranges from a high of 8.4 percent for small pickups to a low of 2.0 percent for vans.

The percentage of collision dollars paid for total losses for 1988 model year vans, pickups, and utility vehicles is shown in Figure 8. Again, the differences are less pronounced than in Figure 7, but similar trends are present. Small pickups and utility vehicles have a higher percentage of collision dollars paid for total losses than do larger pickups and utility vehicles. Vans have the lowest percentage of collision dollars for total losses (less than 20) and small utility vehicles have the highest (approximately 33).

The results for total losses involving 1988 model year passenger cars, vans, pickups, and utility vehicles were presented in Figures 5-8. The detailed results for all five model years (1984-88) showing that the size class and body style relationships highlighted for 1988 models are extremely consistent across all the model years are given in Appendx A, Tables A-1 to A-4.

Comparison of Results by Vehicle Series

The 1988 model year passenger cars with the highest percentage of total losses are listed in Table 1. For all passenger cars, 5.6 percent of all collision claims are total losses and 26.0 percent of all collision dollars are associated with total losses. All nine vehicles listed in Table 1 are small, foreign two-door cars. The first seven cars listed have total loss rates more than twice the all-car rate. The Yugo has the highest percent of total losses with a result of 20.1. That is, one out of every five Yugo collision claims involves a total loss. The Yugo also has the highest percentage of collision dollars paid for total losses (42.9).

Figure 7
Total Losses As A Percentage of All Collision Claims – 1988 Model Year Vans, Pickups, and Utility Vehicles

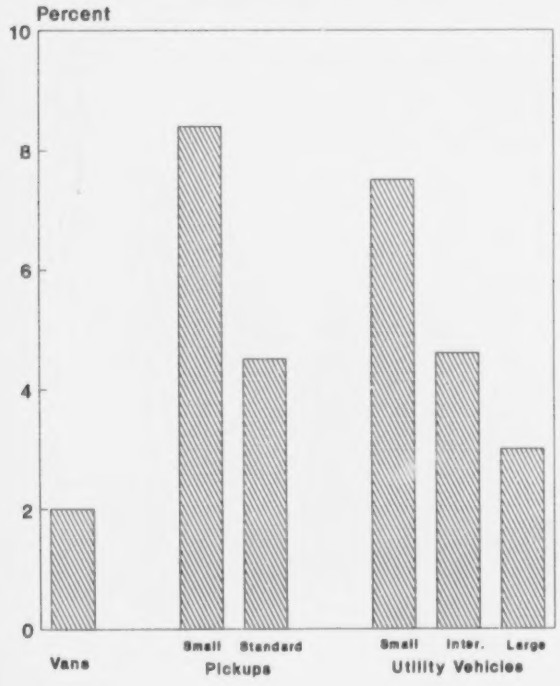


Figure 8
Percentage of Collision Dollars Paid For Total Losses – 1988 Model Year Vans, Pickups, and Utility Vehicles

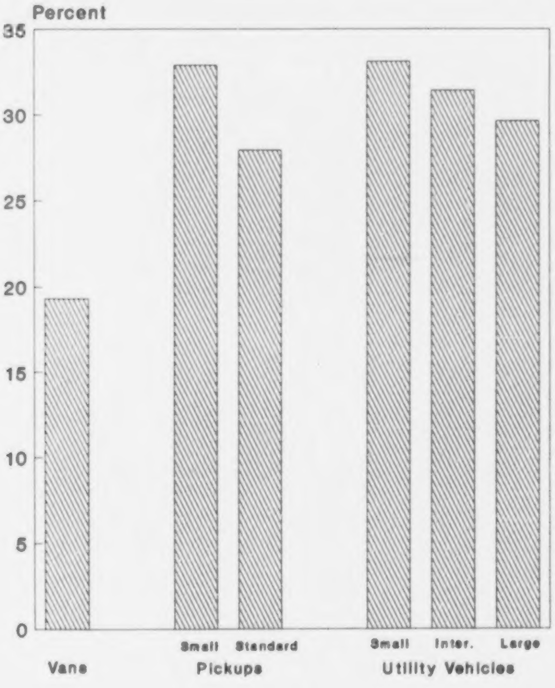


Table 1
1988 Model Year Passenger Cars With the Highest Percent of Total Losses

Make/Series	Body Style	Size	Total Losses As A Percent Of All Collision Claims	Percent of Collision Dollars Paid For Total Losses
All Passenger Cars			5.6	26.0
Yugo	2 Dr.	Small	20.1	42.9
Ford Festiva	2 Dr.	Small	15.9	40.1
Chevrolet Sprint	2 Dr.	Small	15.8	40.7
Subaru Justy	2 Dr.	Small	12.8	37.0
Pontiac LeMans	2 Dr.	Small	12.5	35.9
Chevrolet Spectrum	2 Dr.	Small	12.4	36.2
Plymouth Colt	2 Dr.	Small	12.2	33.7
Mercury Tracer	2 Dr.	Small	11.1	35.8
Mazda 323	2 Dr.	Small	10.9	34.3

Table 2
1988 Model Year Passenger Cars With the Lowest Percent of Total Losses

Make/Series	Body Style	Size	Total Losses As A Percent Of All Collision Claims	Percent of Collision Dollars Paid For Total Losses
All Passenger Cars			5.6	26.0
Lincoln Town Car	Sp.	Large	1.4	13.2
Plymouth Grand Voyager	P.V.	Large	1.6	16.2
Cadillac DeVille 4D	Sp.	Large	1.7	16.9
Dodge Grand Caravan	P.V.	Large	1.7	17.6
Cadillac Eldorado	Sp.	Midsize	1.7	16.5
Cadillac Brougham	Sp.	Large	1.9	18.4
Acura Legend 2D	Sp.	Midsize	2.1	17.3
Plymouth Voyager	P.V.	Large	2.1	17.8
Cadillac DeVille 2D	Sp.	Large	2.1	19.0

Table 2 lists the passenger cars with the lowest percentage of total losses. All of the nine passenger cars listed in Table 2 had total loss rates that were considerably less than half the all-car rate. All are domestic models except the Acura Legend, and all except the Cadillac Eldorado and the Acura Legend are large cars. The Lincoln Town Car has the lowest percentage of total losses (1.4), one-fourth the overall rate, and the lowest percentage of collision dollars paid for total loss claims (13.2).

A comparison of the highest and lowest results shows that the percentage of total losses for the Yugo is over 14 times that for the Lincoln Town Car and that its percentage of collision dollars paid for total losses is over three times that of the Lincoln Town Car.

Results for 1988 model year vans, pickups, and utility vehicles are given in Tables 3 and 4. All four vehicles in Table 3, which lists the vehicles with the highest percentage of total losses, are small domestic pickups. These pickups also have the highest percentage of collision dollars paid for total losses.

Table 4 lists the 1988 model year vans, pickups, and utility vehicles with the lowest percentage of total losses. Three out of the four vehicles with the best results are large vans; the other is a standard size pickup. These vehicles also registered the lowest percentage of collision dollars paid for total losses. The Chevy Van (3/4T) has the lowest percentage in both total losses and collision dollars paid for total losses.

Tables 5 and 6 give the total loss results for all 1988 vehicle series with at least 1,000 collision claims. Individual vehicles with less than 1,000 claims are not listed but their results are included in the aggregated results by size class and body style. The results are presented in increasing order of the calculated percentage of total losses within each body style and size class group. For all 1988 vehicles combined, there were 656,342 collision claims, of which 37,542 had salvage recoveries.

Table 3
1988 Model Year Vans, Pickups, and Utility Vehicles
With the Highest Percent of Total Losses

Make/Series	Body Style	Size	Total Losses As A Percent Of All Collision Claims	Percent of Collision Dollars Paid For Total Losses
All Vehicles			6.2	30.7
Ford Ranger	Pickup	Small	11.2	39.0
Ford Ranger 4X4	Pickup	Small	10.9	41.0
GMC S15	Pickup	Small	10.6	37.4
Chevrolet S10	Pickup	Small	10.5	37.6

Table 4
1988 Model Year Vans, Pickups, and Utility Vehicles
With the Lowest Percent of Total Losses

Make/Series	Body Style	Size	Total Losses As A Percent Of All Collision Claims	Percent of Collision Dollars Paid For Total Losses
All Vehicles			6.2	30.7
Chevrolet Chevy Van (3/4T)	Van	Large	1.5	17.3
Ford E-150 Econoline	Van	Large	1.8	18.4
Chevrolet Astro Cargo Van	Van	Large	1.9	18.1
Ford F-150 Super Cab	Pickup	Standard	2.4	18.3

Table 5
Total Losses -- 1988 Passenger Cars

Make	Series	Number of Collision Claims	Number of Total Losses	Total Losses As A Percent Of All Collision Claims	Percent of Collision Dollars Paid for Total Losses
All	**All**	**520,134**	**29,147**	**5.6**	**26.0**
		SMALL CARS			
Two-Door Models		**97,732**	**8,912**	**9.1**	**31.2**
Acura	Integra	2,804	136	4.9	24.8
Toyota	Celica	4,628	232	5.0	26.2
Nissan	Pulsar	2,741	149	5.4	25.7
Toyota	Corolla	2,330	130	5.6	27.2
Plymouth	Sundance	2,080	119	5.7	25.1
Dodge	Shadow	2,296	152	6.6	28.4
Dodge	Daytona	4,985	348	7.0	29.3
Mazda	MX-6	2,748	197	7.2	31.6
Toyota	Tercel	6,250	464	7.4	28.6
Toyota	Corolla FX	2,288	174	7.6	29.3
Honda	Civic	3,571	281	7.9	30.6
Ford	Escort	8,502	771	9.1	32.3
Ford	88 1/2 Escort	5,214	500	9.6	31.5
Hyundai	Excel	6,652	665	10.0	31.8
Nissan	Sentra	9,642	982	10.2	32.0
Volkswagen	Fox	1,444	149	10.3	32.4
Dodge	Colt	1,560	160	10.3	29.0
Mazda	323	1,856	203	10.9	34.3
Mercury	Tracer	2,592	287	11.1	35.8
Plymouth	Colt	1,143	139	12.2	33.7
Chevrolet	Spectrum	1,379	171	12.4	36.2
Pontiac	Lemans	3,238	405	12.5	35.9
Subaru	Justy	1,145	147	12.8	37.0
Chevrolet	Sprint	1,593	252	15.8	40.7
Ford	Festiva	4,891	777	15.9	40.1
Yugo	Yugo	1,620	325	20.1	42.9
Four-Door Models		**67,687**	**5,208**	**7.7**	**29.3**
Honda	Civic	7,019	364	5.2	25.6
Toyota	Corolla	5,601	312	5.6	24.6
Dodge	Shadow	2,032	116	5.7	26.0
Plymouth	Sundance	2,064	122	5.9	26.8
Volkswagen	Jetta	3,105	186	6.0	27.8
Ford	Escort	2,848	189	6.6	26.0
Chevrolet	Nova	4,680	346	7.4	30.6
Mazda	323	3,502	290	8.3	29.2

Table 5 (Cont'd)
Total Losses -- 1988 Passenger Cars

Make	Series	Number of Collision Claims	Number of Total Losses	Total Losses As A Percent Of All Collision Claims	Percent of Collision Dollars Paid for Total Losses
		SMALL CARS (Cont'd)			
Plymouth	Horizon	2,848	238	8.4	30.1
Nissan	Sentra	2,317	202	8.7	31.2
Hyundai	Excel	11,578	1,024	8.8	31.0
Volkswagen	Fox	2,464	222	9.0	30.3
Chevrolet	Spectrum	1,640	150	9.1	30.5
Pontiac	Lemans	2,660	246	9.2	31.8
Ford	88 1/2 Escort	1,859	183	9.8	33.7
Dodge	Omni	2,731	287	10.5	35.0
Mercury	Tracer	1,915	204	10.7	34.2
Station Wagons/Passenger Vans		**8,625**	**452**	**5.2**	**25.1**
Subaru	DL/GL 4WD	1,476	68	4.6	25.0
Ford	Escort	1,352	67	5.0	22.0
Sports & Specialty		**14,575**	**875**	**6.0**	**28.7**
Mazda	RX-7	1,919	82	4.3	26.0
Pontiac	Fiero	1,620	120	7.4	33.8
Honda	Civic CRX	4,262	324	7.6	31.5
		MIDSIZE CARS			
Two-Door Models		**89,278**	**4,456**	**5.0**	**25.3**
Buick	Regal	5,273	131	2.5	16.9
Honda	Prelude	5,631	167	3.0	19.8
Oldsmobile	Cutlass FWD	3,384	105	3.1	23.0
Oldsmobile	Cutlass RWD	1,101	39	3.5	23.1
Pontiac	Grand Prix	3,257	128	3.9	24.6
Buick	Skylark	1,171	47	4.0	22.0
Mercury	Cougar	5,583	229	4.1	22.2
Honda	Accord	5,386	244	4.5	24.7
Chrysler	LeBaron	2,753	128	4.6	24.8
Oldsmobile	Calais	3,871	187	4.8	25.9
Chevrolet	Monte Carlo	1,335	71	5.3	29.4
Ford	Thunderbird	6,306	336	5.3	27.8
Pontiac	Sunbird	2,864	156	5.4	23.4

Table 5 (Cont'd)
Total Losses -- 1988 Passenger Cars

Make	Series	Number of Collision Claims	Number of Total Losses	Total Losses As A Percent Of All Collision Claims	Percent of Collision Dollars Paid for Total Losses
MIDSIZE CARS (Cont'd)					
Ford	Tempo	2,076	116	5.6	24.7
Pontiac	Grand Am	7,869	443	5.6	26.3
Chevrolet	Beretta	19,355	1,122	5.8	27.3
Chevrolet	Cavalier	8,487	606	7.1	29.8
Four-Door Models		**114,452**	**4,883**	**4.3**	**23.2**
Volvo	240	1,144	30	2.6	20.2
Mercury	Sable	2,854	78	2.7	17.7
Chrysler	New Yorker (C Body)	2,081	63	3.0	23.0
Ford	Taurus	7,753	243	3.1	18.6
Mazada	929	1,304	40	3.1	21.0
Toyota	Camry	8,753	277	3.2	20.4
Nissan	Stanza	1,281	45	3.5	20.6
Oldsmobile	Cutlass Ciera	5,825	208	3.6	19.6
Eagle	Premier	1,455	52	3.6	24.0
Buick	Century	3,030	112	3.7	22.6
Buick	Skylark	1,260	46	3.7	20.6
Honda	Accord	18,395	710	3.9	23.6
Oldsmobile	Calais	1,957	79	4.0	22.4
Dodge	Dynasty	1,311	52	4.0	26.2
Nissan	Maxima	2,922	121	4.1	24.6
Chevrolet	Celebrity	4,792	220	4.6	25.6
Chevrolet	Corsica	14,305	659	4.6	24.7
Ford	Tempo	7,184	340	4.7	21.8
Mercury	Topaz	2,243	105	4.7	20.7
Pontiac	6000	1,857	90	4.8	24.6
Pontiac	Grand Am	2,634	129	4.9	23.7
Mazda	626	3,387	184	5.4	25.7
Dodge	Aries	2,566	167	6.5	27.1
Chevrolet	Cavalier	3,133	210	6.7	28.0
Eagle	Medallion	1,406	95	6.8	28.5
Plymouth	Reliant	3,141	224	7.1	29.0
Station Wagons/Passenger Vans		**10,878**	**412**	**3.8**	**21.3**
Ford	Taurus	2,749	75	2.7	18.5
Chevrolet	Celebrity	1,197	46	3.8	21.6

Table 5 (Cont'd)
Total Losses -- 1988 Passenger Cars

Make	Series	Number of Collision Claims	Number of Total Losses	Total Losses As A Percent Of All Collision Claims	Percent of Collision Dollars Paid for Total Losses
		MIDSIZE CARS (Cont'd)			
Sports & Specialty		**44,105**	**2,317**	**5.3**	**27.6**
Cadillac	Eldorado	1,378	24	1.7	16.5
Acura	Legend 2D	1,311	27	2.1	17.3
Acura	Legend 4D	2,516	57	2.3	21.4
Volvo	740 4D	1,228	39	3.2	24.5
Chrysler	LeBaron Conv.	2,017	75	3.7	24.0
Lincoln	Mark VII	1,740	71	4.1	29.1
Toyota	Supra	1,155	57	4.9	27.3
Ford	Mustang Conv.	1,740	97	5.6	29.5
Pontiac	Firebird	4,219	246	5.8	30.0
Chevrolet	Camaro	5,665	378	6.7	31.1
Ford	Mustang	10,847	920	8.5	33.9
		LARGE CARS			
Two-Door Models		**848**	**27**	**3.2**	**20.6**
Four-Door Models		**27,987**	**716**	**2.6**	**19.4**
Buick	LeSabre	4,027	90	2.2	16.7
Pontiac	Bonneville	2,947	71	2.4	17.6
Buick	Electra	2,844	68	2.4	20.0
Oldsmobile	Ninety-Eight	2,611	63	2.4	20.6
Mercury	Grand Marquis	3,631	88	2.4	19.5
Ford	Crown Victoria	2,687	68	2.5	20.4
Oldsmobile	Delta 88	4,885	135	2.8	19.1
Chevrolet	Caprice	2,649	77	2.9	22.5
Chrysler	New Yorker 5th Ave	1,261	40	3.2	21.2
Station Wagons/Passenger Vans		**26,342**	**594**	**2.3**	**19.7**
Plymouth	Grand Voyager	3,133	50	1.6	16.2
Dodge	Grand Caravan	3,102	53	1.7	17.6
Plymouth	Voyager	4,142	86	2.1	17.8
Chevrolet	Astro Van	3,676	81	2.2	22.4
Dodge	Caravan	3,886	89	2.3	19.1
Ford	Aerostar	5,605	164	2.9	22.4

Table 5 (Cont'd)
Total Losses -- 1988 Passenger Cars

Make	Series	Number of Collision Claims	Number of Total Losses	Total Losses As A Percent Of All Collision Claims	Percent of Collision Dollars Paid for Total Losses
		LARGE CARS (Cont'd)			
Sports & Specialty		**17,625**	**295**	**1.7**	**16.8**
Lincoln	Town Car	7,259	104	1.4	13.2
Cadillac	DeVille 4D	3,521	60	1.7	16.9
Cadillac	Brougham	1,500	28	1.9	18.4
Cadillac	DeVille 2D	1,124	24	2.1	19.0

Table 6
Total Losses -- 1988 Vans, Pickups, and Utility Vehicles

Make	Series	Number of Collision Claims	Number of Total Losses	Total Losses As A Percent Of All Collision Claims	Percent of Collision Dollars Paid for Total Losses
All	**All**	**136,208**	**8,395**	**6.2**	**30.7**
		VANS			
Vans		**11,686**	**235**	**2.0**	**19.3**
Chevrolet	Chevy Van (3/4T)	2,346	36	1.5	17.3
Ford	E-150 Econoline (1/2-3/4T)	2,801	51	1.8	18.4
Chevrolet	Astro Cargo Van	1,865	35	1.9	18.1
		PICKUPS			
Small Pickups		**58,092**	**4,867**	**8.4**	**32.9**
Jeep	Comanche	1,096	55	5.0	23.8
Ford	Ranger Super Cab	2,939	150	5.1	27.7
Dodge	D150 (1/2T)	1,265	67	5.3	26.3
Dodge	Dakota (1/2T)	2,093	120	5.7	28.0
Toyota	Standard Bed	4,681	325	6.9	25.0
Mazda	B Series Standard Bed	2,921	220	7.5	27.7
Ford	Ranger Super Cab 4x4	1,817	139	7.6	36.9
Toyota	Xtra Cab 4x4	1,195	92	7.7	37.4
Mitsubishi	Standard Bed	1,504	119	7.9	26.8
Dodge	Ram50	1,200	103	8.6	30.2
Nissan	Standard Bed	2,699	235	8.7	29.7
Toyota	Standard Bed 4x4	3,705	375	10.1	37.1
Chevrolet	S10	7,527	788	10.5	37.6
GMC	S15	1,458	154	10.6	37.4
Ford	Ranger 4x4	2,034	222	10.9	41.0
Ford	Ranger	9,632	1,074	11.2	39.0
Standard Pickups		**32,814**	**1,463**	**4.5**	**27.9**
Ford	F-150 Super Cab	1,102	26	2.4	18.3
Chevrolet	20 Series (3/4T) 4x4	1,033	36	3.5	22.6
Chevrolet	10 Series (1/2T)	6,890	298	4.3	25.9
GMC	1500 Series (1/2T)	1,870	89	4.8	27.6
Ford	F-250 (3/4T) 4x4	1,242	60	4.8	32.5
Chevrolet	10 Series (1/2T) 4x4	2,666	135	5.1	31.4
Ford	F-150 (1/2-3/4T)	5,194	281	5.4	30.1
Ford	F-150 (1/2-3/4T) 4x4	2,865	173	6.0	34.0

Table 6 (Cont'd)
Total Losses -- 1988 Vans, Pickups, and Utility Vehicles

Make	Series	Number of Collision Claims	Number of Total Losses	Total Losses As A Percent Of All Collision Claims	Percent of Collision Dollars Paid for Total Losses
		UTILITY VEHICLES			
Small Utility Vehicles		**10,956**	**820**	**7.5**	**33.1**
Ford	Bronco II 4x4	4,243	266	6.3	32.8
Jeep	Wrangler	1,325	90	6.8	29.3
Ford	Bronco II	1,653	145	8.8	39.2
Suzuki	Samurai 4x4	2,788	258	9.3	33.1
Intermediate Utility Vehicles		**20,205**	**936**	**4.6**	**31.4**
Ford	Bronco	1,551	53	3.4	26.4
Jeep	Cherokee 4x4	4,497	184	4.1	30.3
Nissan	Pathfinder	1,231	54	4.4	29.9
Chevrolet	T10 Blazer 4x4	3,810	168	4.4	30.9
Toyota	4Runner Wagon	1,049	49	4.7	31.1
Isuzu	Trooper II 4x4	1,911	93	4.9	30.6
Chevrolet	S10 Blazer	1,578	91	5.8	32.9
Large Utility Vehicles		**2,455**	**74**	**3.0**	**29.6**

Appendix A

Table A-1

Total Losses as a Percentage of All Collision Claims By Size Class and Body Style for 1984-88 Model Year Passenger Cars

	Model Year				
Size Class and Body Style	1984	1985	1986	1987	1988
Small					
Two-Door Models	5.9	6.1	6.8	7.5	9.1
Four-Door Models	5.0	5.0	6.0	6.8	7.7
Station Wagons/Passenger Vans	4.3	3.8	4.6	4.9	5.2
Sports & Speciality	4.8	5.3	5.5	5.9	6.0
Midsize					
Two-Door Models	3.5	3.8	4.1	4.6	5.0
Four-Door Models	3.3	3.6	3.5	3.8	4.3
Station Wagons/Passenger Vans	3.3	3.5	3.7	3.2	3.8
Sports & Specialty	4.4	4.7	4.8	4.5	5.3
Large					
Two-Door Models	1.5	1.9	2.0	2.2	3.2
Four-Door Models	1.9	2.1	2.2	2.4	2.6
Station Wagons/Passenger Vans	1.7	2.0	2.4	2.2	2.3
Sports & Specialty	1.5	1.6	1.5	1.5	1.7

Table A-2

Percent of Collision Dollars Paid for Total Losses By Size Class and Body Style for 1984-88 Model Year Passenger Cars

	Model Year				
Size Class and Body Style	**1984**	**1985**	**1986**	**1987**	**1988**
Small					
Two-Door Models	26.7	27.0	27.6	28.7	31.2
Four-Door Models	25.2	24.4	26.3	27.4	29.3
Station Wagons/Passenger Vans	25.1	22.7	24.7	25.8	25.1
Sports & Specialty	28.1	28.4	28.3	28.4	28.7
Midsize					
Two-Door Models	20.9	21.5	22.6	24.0	25.3
Four-Door Models	20.7	21.0	21.0	22.1	23.2
Station Wagons/Passenger Vans	22.0	21.6	21.8	19.4	21.3
Sports & Specialty	26.4	25.6	26.7	25.8	27.6
Large					
Two-Door Model	13.5	15.6	15.1	17.1	20.6
Four-Door Model	17.0	17.3	17.0	18.0	19.4
Station Wagons/Passenger Vans	16.2	18.2	20.5	19.4	19.7
Sports & Specialty	15.1	15.6	15.4	14.6	16.8

Table A-3

Total Losses as a Percentage of All Collision Claims By Vehicle Type for 1984-88 Model Year Vans, Pickups, and Utility Vehicles

	Model Year				
Vehicle Type	**1984**	**1985**	**1986**	**1987**	**1988**
Vans	1.6	1.9	2.4	2.1	2.0
Small Pickups	5.6	6.3	6.8	7.4	8.4
Standard Pickups	4.1	6.7	4.5	5.1	4.5
Small Utiltiy Vehicles	5.9	4.1	7.3	7.2	7.5
Intermediate Utility Vehicles	3.3	3.8	4.0	4.6	4.6
Large Utility Vehicles	1.7	1.3	2.0	2.6	3.0

Table A-4

Percent of Collision Dollars Paid for Total Losses By Vehicle Type for 1984-88 Model Year Vans, Pickups, and Utility Vehicles

	Model Year				
Vehicle Type	**1984**	**1985**	**1986**	**1987**	**1988**
Vans	18.5	20.0	21.2	19.8	19.3
Small Pickups	27.4	28.1	28.1	29.9	32.9
Standard Pickups	27.4	32.8	27.6	30.6	27.9
Small Utility Vehicles	31.4	26.1	34.5	33.5	33.1
Intermediate Utility Vehicles	25.5	27.6	28.1	30.2	31.4
Large Utility Vehicles	20.6	18.0	22.6	26.9	29.6

Appendix B Definitions

Average Loss Payment per Claim -- The total of all loss payments made for the claims for a group of vehicles, divided by the number of claims paid.

Collision Coverages -- As defined in insurance contracts, the coverage under which people insure their own vehicle against loss caused by collision.

Loss Payment -- That portion of the collision damage cost borne by the insurer; in general, the total collision damage cost minus the deductible amount.

Salvage Credit -- Occurs when the estimated collision repair cost exceeds the replacement value of the car, less its salvage value.

Salvage Recovery Value -- The amount recovered by the insurer in selling the vehicle as salvage.

Vehicle Class -- There are four vehicle classes, defined as follows:

1. **Passenger Cars** -- There are four major body style groupings of passenger cars -- regular two-door models, regular four-door models, station wagons and passenger vans, and sports and specialty models. Sports or specialty models include all two-seater cars, all convertibles, all midsize and large cars with two or fewer designated rear seating positions, and all luxury cars. Each body style group is further divided into size class subgroups based on wheelbase (rounded to nearest inch) defined as follows:

   Small -- Vehicles with wheelbases less than or equal to 99 inches.
   Midsize -- Vehicles with wheelbases greater than 99 inches and less than or equal to 109 inches.
   Large -- Vehicles with wheelbases greater than 109 inches.

2. **Vans** -- Fully enclosed vehicles with either no hood or a very short hood, in which the engine is placed at least 50 percent behind the windshield. The driver's position is usually well forward, nearly beside the engine, usually within the forward 25 percent of the wheelbase. These vehicles are designed for cargo access door and rear door. The cargo area is not separated from the passenger area -- both are enclosed under the same roof.

3. **Pickups** -- Cargo-carrying vehicles, usually on a truck chassis, with an enclosed cab and a separate open cargo area. The open cargo area generally is a box with raised sides with an opening tailgate. There are also a small number of auto pickups which are similar to regular pickups except that they are built on a passenger car chassis. Pickups are further divided into two subgroups based on curb weight -- small pickups (less than 3,500 pounds) and standard pickups (3,500 pounds or more).

4. **Utility Vehicles** -- Vehicles built on a heavy-duty chassis capable of off-road use. They are of conventional construction with the driver behind the engine. The cargo and passenger areas are integral with the driver area. Many of these vehicles are equipped with soft or removable tops. Frequently, these vehicles are equipped with four-wheel drive. Utility vehicles are further divided into three subgroups based on wheelbase -- small utility vehicles (less than 100 inches), intermediate utility vehicles (from 100 to 120 inches), and large utility vehicles (greater than 120 inches).

Vehicle Identification Number (VIN) -- A code, variously comprising both numbers and letters; normally, 8 to 17 characters in length, assigned to each vehicle by its manufacturer. The VIN uniquely identifies the vehicle within at least a ten-year time span and, in recent model year vehicles, contains coding which identifies the make, series, model year, and other characteristics of each vehicle.

Vehicle Series -- A name denoting a family of vehicles, within a make, with the same wheelbase and a degree of commonality in construction such as body, chassis, etc.

Selected Publications

R89-2 *Insurance Collision Report, Passenger Cars, Vans, Pickups, and Utility Vehicles, 1989 Models During Their First Year, 1988 Models During their First Two years, 1987 Models During Their First Three Years*, December 1989.

I88-1 *Insurance Injury Report, Passenger Cars, Vans, Pickups, and Utility Vehicles; 1986-1988 Models*, September 1989.

T89-1 *Insurance Theft Report; Passenger Cars, Vans, Pickups, and Utility Vehicles: 1989 Models During Their First Year, 1988 Models During Their First Two Years, 1987 Models During Their First Three Years*, May 1990.

A-5 *Automobile Insurance Losses, Collision Coverages; Relationships Between Losses and Vehicle Body Style, 1974 and 1975 Models*, December 1975.

A-7 *Automobile Insurance Losses, Collision Coverages; Annual Increases and Seasonal Variations 1972, 1973, 1974 and 1975 Models*, June 1976.

A-9 *Automobile Insurance Losses, Collision Coverage; A Comparison of Collision Claim Size Distributions for 1974-76 Models*, November 1977.

A-11 *Automobile Insurance Losses, Collision Coverage; The Consistency of the Loss Experience of Specific Vehicles Produced in Several Years, 1975 to 1978 Models*, June 1979.

A-12 *Automobile Insurance Losses, Collision Coverage; An Assessment of the Effects of the Federal Safety Bumper Standard on the Losses for 1972 Through 1978 Models*, June 1980.

A-13 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverage; The Effects of Car Size on Crash Losses, 1977-1980 Models*, May 1981.

A-14 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverage; Comparisons of the Loss Experience of Two- and Four-Door Cars, 1978, 1979, and 1980 Models*, May 1981.

A-16 *Automobile Insurance Losses, Collision Coverages; The Frequency of Claims Involving Salvage; Subcompact and Compact Cars; 1980 Models*, January 1982.

A-17 *Insurance Losses, Comprehensive Coverage; Non-Crash Fire Losses; 1979-1980 Models*, February 1982.

A-18 *Insurance Losses, Theft Coverage; The Distribution of Theft Loss Payment Amounts; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1981 Models During Their First Year, 1980 Models During Their First Two Years, 1979 Models During Their First Three Years*, June 1982.

A-19 *Insurance Losses, Theft Coverages; A Comparison of the Theft Loss Experience of General Motors Passenger Cars With and Without Factory-Installed Theft Deterrent Systems; 1980-1981 Models*, January 1983.

A-20 *Insurance Losses, Collision Coverages, A Comparison of the Collision Loss Experience of Subaru Models with 5 and 2.5 MPH Bumpers*, April 1983.

A-21 *Insurance Losses, Personal Injury Protection Coverages, Injury Claim Frequencies for Volkswagen Rabbits with Automatic and Manual Seat Belts, 1981, and 1982 Models*, April 1984.

A-22 *Insurance Losses, Collision Coverages, An Analysis of Salvage Credits, 1977 Through 1982 Model Year Cars*, July 1984.

A-23 *Injury and Collision Losses by Engine Option, Selected 1983 Models*, October 1985.

A-24 *Comparison of the Insurance Loss Experience of Unibody and Frame Construction Cars After a Collision Repair, 1981-82 Models*, October 1985.

A-25 *Relationships Between Losses and Vehicle Density, 1982-84 Models*, October 1985.

A-26 *Consistency of Model Year Injury Claim Frequency Results for Selected 1981-1983 Models*, May 1986.

A-27 *A Preliminary Evaluation of New York and New Jersey Insurance Injury Claim Results Before and After Enactment of Mandatory Seat Belt Legislation; 1983-85 Models*, May 1986.

A-28 *Insurance Injury Loss Experience in Eight States with Seat Belt Laws, 1983-86 Models*, July 1988.

A-29 *Insurance Losses Based on Garaging Location, 1985-87 Models*, June 1988.

A-30 *Automobile Insurance Losses, A Comparison of California and National Results*, May 1988.

A-31 *The Effect of Vehicle Component Parts Marking on Theft*, December 1989.

A-32 *Automobile Theft Losses By Size of Claim and in Selected States*, December 1989.

A-33 *Noncrash Fire Losses, 1986-88*, December 1989.

Sponsoring Companies Aetna Casualty and Surety Company Aetna Casualty & Surety Company of America Aetna Casualty & Surety Company of Illinois AgSecurity Insurance Company Alaska Pacific Assurance Company Alfa Mutual General Insurance Company Alfa Mutual Insurance Company Alliance Assurance Company Ltd. Allied Insurance Company Allstate Indemnity Company Allstate Insurance Company Allstate Property and Casualty Insurance Company American & Foreign Insurance Company American Casualty Company of Reading Pennsylvania American Economy Insurance Company American Family Mutual Insurance Company American General Fire & Casualty Company American Lloyds Insurance Company American Manufacturers Mutual Insurance Company American Motorist Insurance Company American Protection Insurance Company American States Insurance Company American States Insurance Company of Texas American States Preferred Insurance Company Amica Mutual Insurance Company Assurance Company of America Athena Assurance Company Atlanta Casualty Company Atlantic Employers Insurance Company Atlas Assurance Company of America Automobile Insurance Company of Hartford Bankers Standard Insurance Company Bituminous Casualty Corporation Bituminous Fire & Marine Insurance Company Boston Old Colony Insurance Company Brotherhood Mutual Insurance Company Buckeye Union Insurance Company CalFarm Insurance Company Camden Fire Insurance Association Casualty Insurance Company Century Indemnity Company Charter Oak Fire Insurance Company Chubb Insurance Company of New Jersey Chubb Lloyds Insurance Company of Texas Church Mutual Insurance Company CIGNA Fire Underwriters Insurance Company CIGNA Insurance Company CIGNA Insurance Company of Illinois CIGNA Insurance Company of the Midwest CIGNA Insurance Company of Ohio CIGNA Insurance Company of Texas CIGNA Property and Casualty Insurance Company CNA Casualty of California Colonial Insurance Company Columbia Casualty Company Commercial Insurance Company of Newark Concord General Mutual Insurance Company Continental Casualty Company Continental Insurance Company Continental Insurance Company of New Jersey Cotton States Mutual Insurance Company Country Casualty Insurance Company Country Mutual Insurance Company Country Preferred Insurance Company Countrywide Insurance Company Covenant Insurance Company Criterion Casualty Company CUMIS Insurance Society Inc. Economy Fire and Casualty Company Empire Insurance Company Employers Insurance of Wausau Employers Mutual Casualty Company Erie Insurance Exchange Farm Bureau Mutual Insurance Company Inc. of Kansas Farm Bureau Mutual Insurance Company of Idaho Farm Bureau Mutual Insurance Company of Iowa Farm Bureau Mutual Insurance Company of Nebraska Farmers & Merchants Insurance Company Farmers Automobile Association of Pekin Illinois Farmers Insurance Company Inc. Farmers Insurance Company of Arizona Farmers Insurance Company of Idaho Farmers Insurance Company of Oregon Farmers Insurance Company of Washington Farmers Insurance Exchange Farmers Insurance of Columbus Inc. Farmers Mutual Insurance Company of Nebraska Farmers Texas County Mutual Insurance Company Farmington Casualty Company Farmland Mutual Insurance Company Federal Insurance Company Federal Kemper Insurance Company The Fidelity & Casualty Company of New York Fidelity and Deposit Company of Maryland Fidelity & Guaranty Insurance Company Fidelity & Guaranty Insurance Underwriters Inc. Firemen's Insurance Company of Newark First Fire and Casualty Insurance of Hawaii Inc. First Indemnity Insurance of Hawaii Inc. First Insurance Company of Hawaii Ltd. First National Insurance Company of America Foundation Reserve Insurance Company Inc. GEICO General Insurance Company GEICO Indemnity Company General Accident Insurance Company of America General Insurance Company of America The Glens Falls Insurance Company Globe Indemnity Company Gothaer Insurance Company Government Employees Insurance Company Great Northern Insurance Company Great West Casualty Company Green Mountain Insurance Company Inc. Grinnell Mutual Reinsurance Company Guaranty National Insurance Company Halcyon Insurance Company Harbor Insurance Company Harleysville Mutual Insurance Company Hartford Accident and Indemnity Company Hartford Casualty Insurance Company Hartford Fire Insurance Company Hartford Insurance Company of Connecticut Hartford Insurance Company of Illinois Hartford Insurance Company of the Midwest Hartford Insurance Company of the Southeast IDS Property Casualty Insurance Company Illinois Employers Insurance of Wausau Illinois Farmers Insurance Company Indemnity Insurance Company of North America Indiana Farmers Mutual Insurance Company Insurance Company of North America John Deere Insurance Company Kansas City Fire and Marine Insurance Company Kentucky Central Insurance Company KFB Insurance Company Inc. League General Insurance Company Liberty Insurance Corporation Liberty Mutual Fire Insurance Company Liberty Mutual Insurance Company Liberty Northwest Insurance Corporation London Assurance Lumbermens Mutual Casualty Company Maine Bonding and Casualty Company Maryland Casualty Company Mayflower Insurance Company Ltd. Merit Insurance Company Metropolitan Property and Liability Insurance Company Michigan Education Employees Mutual Insurance Company Michigan Mutual Insurance Company Mid-Century Insurance Company Mid-Century Insurance Company of Texas Middlesex Mutual Assurance Company Midwest Mutual Insurance Company Montgomery Mutual Insurance Company Motor Club Insurance Association of Nebraska Motor Club of America Insurance Company Motors Insurance Corporation National-Ben Franklin Insurance Company of Illinois National Casualty Company National Fire Insurance Company of Hartford National General Fire & Casualty Company National General Insurance Company of Missouri National Grange Mutual Insurance Company National Standard Insurance Company Nationwide Agribusiness Insurance Company Nationwide General Insurance Company Nationwide Indemnity Insurance Company Nationwide Mutual Fire Insurance Company Nationwide Mutual Insurance Company Nationwide Property and Casualty Insurance Company New York Underwriters Insurance Company Newark Insurance Company Niagara Fire Insurance Company North Carolina Farm Bureau Mutual Insurance Company North Pacific Insurance Company Northbrook Indemnity Company Northbrook National Insurance Company Northbrook Property and Casualty Insurance Company Northern Insurance Company of New York Northwestern Pacific Indemnity Company Nutmeg Insurance Company Oklahoma Farm Bureau Mutual Insurance Company Oregon Automobile Insurance Company Pacific Employers Insurance Company Pacific Indemnity Company Pacific Insurance Company Pacific Insurance Company Ltd. Pekin Insurance Company PEMCO Insurance Company PEMCO Mutual Insurance Company Pennsylvania General Insurance Company Phoenix Insurance Company Potomac Insurance Company of Illinois Preferred Risk Insurance Company Progressive American Insurance Company Progressive Casualty Insurance Company Progressive County Mutual Insurance Company Progressive Gulf Insurance Company Progressive Mountain Insurance Company Progressive Northern Insurance Company Progressive Northwestern Insurance Company Progressive Preferred Insurance Company Progressive Southeastern Insurance Company Progressive Specialty Insurance Company Provident General Insurance Company Prudential Commercial Insurance Company Prudential General Insurance Company Prudential-LMI Commercial Insurance Company Prudential Property and Casualty Insurance Company The Prudential Property and Casualty Insurance Company of New Jersey Puerto Rican-American Insurance Company Ramsey Insurance Company Ranger Insurance Company Royal Indemnity Company Royal Insurance Company of America Royal Milbank Insurance Companies SAFECO Insurance Company of America SAFECO Insurance Company of Illinois SAFECO Lloyds Insurance Company SAFECO National Insurance Company Safeguard Insurance Company Scottsdale Insurance Company Sea Insurance Company Ltd. SECURA Insurance Selective Insurance Company of America Selective Insurance Company of the Southeast Selective Way Insurance Company Sentinel Insurance Company Ltd. Shelter General Insurance Company Shelter Mutual Insurance Company Shield Insurance Company Southern Guaranty Insurance Company Southern Heritage Insurance Company Standard Fire Insurance Company State Auto Insurance Company State Farm County Mutual Insurance Company of Texas State Farm Fire and Casualty Company State Farm General Insurance Company State Farm Mutual Automobile Insurance Company St. Paul Fire and Casualty Insurance Company St. Paul Fire & Marine Insurance Company St. Paul Guardian Insurance Company St. Paul Indemnity Insurance Company St. Paul Insurance Company St. Paul Insurance Company of Illinois St. Paul Insurance Company of North Dakota St. Paul Lloyds Insurance Company St. Paul Mercury Insurance Company St. Paul Property and Casualty Insurance Company Sun Insurance Office Ltd. Texas Employers' Insurance Association Texas Farmers Insurance Company Texas Pacific Indemnity Company Transamerica Indemnity Company Transamerica Insurance Company Transamerica Insurance Company of Michigan Transamerica Insurance Company of Texas Transamerica Insurance Corporation of America Transamerica Premier Insurance Company Transamerica Specialty Insurance Company Transcontinental Insurance Company Transportation Insurance Company Travelers Indemnity Company Travelers Indemnity Company of America Travelers Indemnity Company of Illinois Travelers Indemnity Company of Rhode Island Travelers Insurance Company Truck Insurance Exchange Twin City Fire Insurance Company United Services Automobile Association United States Fidelity and Guaranty Company USAA Casualty Insurance Company Utica Mutual Insurance Company Valiant Insurance Company Valley Forge Insurance Company Vigilant Insurance Company Wausau Underwriters Insurance Company

A5200-4.26F

10/90

INSURANCE SPECIAL REPORT

A-35

Automobile Theft Losses in Selected Cities and Border Regions

Highway Loss Data Institute

Insurance Special Report
A-35

Automobile Theft Losses in Selected Cities and Border Regions

HIGHWAY
LOSS
DATA
INSTITUTE

Permission to quote from or to reproduce material from this publication is granted when due acknowledgement is made.
Highway Loss Data Institute -- 1005 North Glebe Road -- Arlington, Virginia 22201
Research Report HLDI A-35--October 1990--Copyright 1990/HLDI

The membership of the Highway Loss Data Institute Board of Directors and the Technical Resource Committee represents insurance companies that are supplying data to HLDI. Financial support for HLDI is provided through the Insurance Institute for Highway Safety, which in turn is supported by most automobile insurers either directly or through their trade associations.

Board of Directors

G.C. Klingman, Chairman
The Travelers Insurance Companies

M. Albaum
Prudential Property and Casualty Insurance Company

D.T. Ballen
American Insurance Association

H.L. Cohen
Government Employees Insurance Company

J.B. Conners
Liberty Mutual Insurance Company

S.F. Goldberg
United Services Automobile Association

T.A. Hoyt
Nationwide Mutual Insurance Company

R.S. Lawson
Alliance of American Insurers

S.D. Marks
Aetna Life and Casualty

W.W. Sorenson
State Farm Mutual Automobile Insurance Company

J.S. Trees
Allstate Insurance Company

T.E. Troxel
National Association of Independent Insurers

B. O'Neill, ex officio
Highway Loss Data Institute

Technical Resource Committee

M. Albaum, Chairman
Prudential Property and Casualty Insurance Company

H.L. Cohen
Government Employees Insurance Company

R.O. Elder
Highway Loss Data Institute

S.F. Goldberg
United Services Automobile Association

T.A. Hoyt
Nationwide Mutual Insurance Company

G.C. Klingman
The Travelers Insurance Companies

S.D. Marks
Aetna Life and Casualty

R.T. Muleski
Liberty Mutual Insurance Company

B. O'Neill
Highway Loss Data Institute

W.W. Sorenson
State Farm Mutual Automobile Insurance Company

J.S. Trees
Allstate Insurance Company

CONTENTS

Summary 1

Introduction 2

Results and Discussion 2

Urban, Suburban, and Metropolitan Area Comparisons 4

1987, 1988, and 1989 Model Year Losses 6

Vehicle Series with the Worst Theft Results: New York, Los Angeles, and Chicago 7

Appendix A Counties Contained in the Metropolitan Statistical Areas 10

Appendix B Counties in Regions Bordering Mexico and Canada 13

Appendix C Definitions 14

Selected Publications 15

Table 1 Theft Results for 1987-90 Models in 30 Selected Cities 3

Table 2 Theft Results for 1987-90 Models in Border Regions 4

Table 3 Theft Results for 1987-89 Models in 30 Selected Cities Based on First Year of Experience for Each Model Year 5

Table 4 Theft Results for 1987-89 Models in Border Regions Based on First Year of Experience for Each Model Year 6

Table 5 Vehicles with the Highest Theft Results in New York Metropolitan Area; 1987-90 Models 7

Table 6 Vehicles with the Highest Theft Results in Los Angeles Metropolitan Area; 1987-90 Models 8

Table 7 Vehicles with the Highest Theft Results in Chicago Metropolitan Area; 1987-90 Models 9

SUMMARY

This Highway Loss Data Institute (HLDI) special report presents information on the theft losses for 1987-90 model year passenger cars, vans, pickups, and utility vehicles for 30 large cities and for counties in states bordering Canada and Mexico. The cities selected included those with the largest metropolitan statistical area population, except Boston for which data were unavailable. The results for each city are given for the total metropolitan area as well as separately for the central urban and suburban areas. Results for the Mexican and Canadian border regions were also examined because theft losses in some border areas are known to be extremely high.

Principal Findings

- Theft loss results vary considerably among cities. The average theft loss payment per insured vehicle year for the New York metropolitan area is nearly four times the national average, while that for the Norfolk, Virginia metropolitan area is only about one-third the national average.
- The New York urban area has an average loss payment per claim of nearly $6,400, which is more than $2,000 greater than any other urban area. Such large average loss payments indicate a large percentage of total thefts.
- Urban area claim frequencies are higher than those for the surrounding suburban area in all cities and large differences occur in many cities. Houston has the highest metropolitan area theft claim frequency.
- Theft losses in the *suburban* areas of New York and Houston are far higher than those in the suburban areas of the other cities.
- From 1987 to 1989, overall theft claims in the United States decreased 2.1 claims per 1,000 insured vehicle years, increased $214 in average loss payment per claim, and decreased $3 in average loss payment per insured vehicle year based on the first year of experience for each model year.
- In the New York metropolitan area, the four-door Volkswagen Jetta had the highest claim frequency (72.1 claims per 1,000 insured vehicle year), the Lincoln Mark VII had the highest average loss payment per theft claim ($15,019), and the Pontiac Firebird had the highest average loss payment per insured vehicle year ($480).
- In the Los Angeles metropolitan area, the four-door Volkswagen Jetta had the highest claim frequency (142.9 claims per 1,000 insured vehicle years) and the highest average loss payment per insured vehicle year ($135). The Mazda RX-7 coupe had the highest average loss payment per claim ($6,160). Imported models were prominent among the cars with the highest theft losses in Los Angeles.
- In the Chicago metropolitan area, the four-door Hyundai Excel had the highest claim frequency (70.3 claims per 1,000 insured vehicle years), the Chevrolet Camaro had the highest average loss payment per claim ($5,485), and the Pontiac Firebird had the highest average loss payment per insured vehicle year ($175). All five vehicles with the highest average loss payments per insured vehicle year in Chicago are General Motors products.
- Most of the vehicles with high claim frequencies have relatively low average loss payments per claim, which suggests than many of the claims are for stolen components such as radios.
- Theft losses in all three loss categories were extremely high in the counties located along the Mexican border. The average loss payment per claim in these counties of $6,010 indicates a large percentage of total thefts in these areas.

Introduction

The Highway Loss Data Institute (HLDI) is a nonprofit, public service organization that gathers, processes, and publishes insurance data concerned with human and economic losses resulting from owning and operating motor vehicles -- especially concerning the ways such losses vary among different kinds of vehicles.

HLDI routinely publishes reports describing the variation in theft losses among different vehicles *(HLDI T89-1)*. Previous HLDI studies have shown that automobile theft losses are particularly large in urban areas *(HLDI A-29)*. Although the area is primarily rural in nature, high theft rates have also been noted along the Mexican border, where many vehicles are apparently stolen with the intent of exporting the car or its parts *(HLDI A-32)*. This report describes the theft losses for 1987-90 model year passenger cars, vans, pickups, and utility vehicles in 30 selected cities and their surrounding metropolitan areas. In addition, theft losses in the counties located along the Mexican and Canadian borders are also described. Results are based on the theft loss experience under comprehensive coverages through February 1990. Included under the definition of thefts are losses ranging from the theft of items from the vehicle to the theft of the vehicle itself.

The 30 cities were selected to include those with the largest metropolitan statistical area population as reported in the latest official county population estimates from the U.S. Bureau of Census (1987 data).[1] Boston was excluded from the 30 cities because no comparable insurance theft data were available for Massachusetts. Each metropolitan statistical area is made up of a central urban county, which contains the named city, and the surrounding suburban counties. New York's urban area consists of the five boroughs/counties. Both the Phoenix and San Diego metropolitan statistical areas are single counties. Due to data constraints, the New Jersey counties included in the Philadelphia and New York metropolitan areas have been excluded. Appendix A lists the counties in each metropolitan area.

The border regions consist of all counties in the states that border Mexico and Canada that are not included in one of the 30 metropolitan statistical areas. Appendix B lists the counties in each border region.

This report is based on theft loss data supplied by 11 insurers: Aetna, Allstate, Fireman's Fund, Kemper, Liberty, Nationwide, Prudential, Safeco, State Farm, Travelers, and USAA. A list of definitions of the terms used in the report is contained in Appendix C.

It is intended that the dissemination of this and other HLDI reports will contribute to research into ways to reduce crash damage, crash injuries, and theft losses, and that it will also inform the public about differences in the loss experience produced by different kinds of vehicles.

Results and Discussion

This report describes theft losses using three measures of vehicle theft: claim frequency, average loss payment per claim, and average loss payment per insured vehicle year. The first section of this report describes these measures for the 30 cities and for the two border regions. The results for each city are presented for the total metropolitan area and also separately for the urban and suburban areas. The second section of this report analyzes the changes in the theft results for the 30 cities and for the border regions during a three-year period. The first year theft results for model years 1987, 1988, and 1989 are compared for each area. The third section of the report describes the vehicle series with the worst theft results in the three largest cities: New York, Los Angeles, and Chicago.

The results are standardized to minimize differences that might be attributed to variations in the mix of deductible amounts and operator age groups among different geographic areas and among the individual vehicles. Both the frequency and average size of insurance theft losses vary with the deductible amount and the age group of the operators. Standardization ensures that the mix of these two nonvehicle factors is the same for each result. Therefore, to the extent that age distributions within each operator age group and dollar amounts within each deductible group do not vary

---

[1] U.S. Bureau of the Census. 1989. *Statistical Abstract of the United States*. Washington, DC: U.S. Government Printing Office.

Table 1

Theft Results for 1987-90 Models in 30 Selected Cities[1]

		Claim Frequency[2]			Average Loss Payment Per Claim			Average Loss Payment Per Insured Vehicle Year		
City	**Exposure**	**Urban[3]**	**Sub-urban[4]**	**Total Metro**	**Urban**	**Sub-urban**	**Total Metro**	**Urban**	**Sub-urban**	**Total Metro**
New York[5]	1,057,730	27.2	14.1	17.3	$6,393	$4,493	$5,174	$174	$63	**$90**
Houston	409,469	28.7	16.4	25.3	3,008	3,532	3,084	86	58	**78**
San Antonio	122,897	19.3	9.1	18.4	3,823	2,949	3,782	74	27	**70**
Detroit	432,928	20.9	14.6	16.8	2,896	2,339	2,583	60	34	**43**
Dallas	478,310	23.9	20.6	22.2	2,044	1,659	1,862	49	34	**41**
Miami	423,896	15.3	7.2	10.8	3,550	3,403	3,485	54	24	**38**
San Diego[6]	222,375	19.6	-	19.6	1,811	-	1,811	36	-	**36**
Los Angeles	1,069,426	16.9	14.1	15.4	2,531	2,005	2,272	43	28	**35**
Pittsburgh	305,174	10.3	5.2	8.3	3,374	4,544	3,614	35	24	**30**
Chicago	1,231,136	15.6	9.0	13.1	2,161	2,352	2,181	34	21	**28**
New Orleans	146,203	16.6	11.9	13.1	2,463	1,894	2,083	41	22	**27**
Sacramento	109,691	19.1	9.0	16.0	1,654	2,010	1,687	32	18	**27**
Phoenix[6]	196,509	13.0	-	13.0	1,897	-	1,897	25	-	**25**
Philadelphia[5]	530,080	12.6	4.9	6.1	4,102	3,700	3,781	52	18	**23**
Kansas City	185,591	13.5	11.0	11.9	1,943	1,630	1,767	26	18	**21**
Atlanta	488,682	10.6	7.0	8.0	2,462	2,686	2,601	26	19	**21**
Cleveland	380,722	11.1	6.9	9.3	2,244	2,345	2,180	25	16	**20**
San Francisco	535,740	31.1	13.8	14.8	1,232	1,369	1,353	38	19	**20**
Portland (Ore.)	130,833	29.1	12.0	17.9	1,020	1,049	1,034	30	13	**18**
St. Louis	325,084	13.6	7.0	7.6	2,411	2,185	2,197	33	15	**17**
Baltimore	399,329	12.1	7.5	8.3	1,736	2,023	1,939	21	15	**16**
Washington, DC	674,475	19.1	7.5	8.6	1,747	1,913	1,855	33	14	**16**
Columbus (Ohio)	184,545	10.4	6.1	9.4	1,631	2,121	1,623	17	13	**15**
Tampa	285,972	8.7	6.2	7.4	2,060	1,919	1,963	18	12	**15**
Denver	204,039	21.7	12.9	14.4	760	1,084	990	16	14	**14**
Cincinnati	210,052	9.2	7.2	8.2	1,209	1,786	1,448	11	13	**12**
Milwaukee	89,566	12.6	6.1	9.4	1,159	1,483	1,246	15	9	**12**
Seattle	172,969	12.6	9.2	11.4	965	1,053	990	12	10	**11**
Minneapolis	239,794	8.3	7.1	7.7	1,212	1,366	1,283	10	10	**10**
Norfolk	210,956	9.5	6.6	7.0	1,321	1,142	1,173	12	8	**8**
U.S. Total	27,262,479			9.6			$2,424			$23

[1] Selected cities are the 30 metropolitan statistical areas with the largest populations, excluding Boston, as given in *Statistical Abstract of the United States* (1989, U.S. Bureau of the Census, Washington, DC: U.S. Government Printing Office). Boston was exluded as no comparable insurance theft data were available for Massachusetts.

[2] Based on claims per 1,000 insured vehicle years.

[3] Urban area is defined to be the central county containing the named city. New York's urban area consists of the five boroughs/counties.

[4] Suburban area is defined to be all counties in the metropolitan area not contained in the urban area.

[5] The New Jersey counties are excluded from the metropolitan statistical area.

[6] The San Diego and Phoenix metropolitan areas contain only one county, hence no suburban area exists.

substantially for different areas and vehicles, these effects will not bias comparisons among the various results. Other nonvehicle factors have not necessarily been eliminated from the results presented in this report.

Urban, Suburban, and Metropolitan Area Comparisons

Table 1 contains the exposure, claim frequency, average loss payment per claim, and average loss payment per insured vehicle year for the 30 selected cities. Each city's results are presented for the urban area, suburban area, and total metropolitan area. The cities are listed in descending order of the average loss payment per insured vehicle year for the total metropolitan area. As seen in Table 1, there are large differences in the results among cities. New York has the highest total metropolitan area average loss payment per insured vehicle year ($90) and Norfolk has the lowest ($8). The metropolitan area average loss payment per insured vehicle year results for New York, Houston, and San Antonio are more than three times the U.S. average of $23, while the results for Norfolk, Minneapolis, and Seattle are less than half the U.S. average. Average loss payments per insured vehicle year in the urban areas of New York are more than seven times the U.S. average. The urban result is appreciably higher than the suburban result for most cities. Theft losses in the suburban areas of New York and Houston are far higher than those in suburban areas of the other cities.

Houston has the highest total metropolitan area theft claim frequency (25.3). Dallas and San Diego also have metropolitan area claim frequencies that are more than double the U.S. average of 9.6 claims per 1,000 years of exposure. Philadelphia has the lowest total metropolitan area claim frequency (6.1). Two West Coast cities--San Francisco and Portland, Oregon--have urban area claim frequencies that are more than three times the U.S. average. In all cases, the urban area theft claim frequencies exceed the corresponding suburban area claim frequencies.

New York has by far the highest urban area average loss payment per claim ($6,393). It exceeds by more than $2,000 the urban area result of any other city. New York also has the highest total metropolitan area average loss payment per claim ($5,174), which is more than double the U.S. average of $2,424. A high average loss payment per claim indicates that a relatively large percentage of the claims are for total thefts. Denver and Seattle had the lowest metropolitan area average loss payments per claim ($990). A low average loss payment suggests that many of the claims are for stolen components rather than for the vehicle itself.

This theft analysis indicates that the pattern of automobile theft varies considerably among the cities studied. For example, the theft results in the urban areas of San Francisco, Portland, and Denver show high claim frequencies but low average loss payments per claim. In contrast, in the suburban areas of Pittsburgh and Philadelphia, the theft claim frequencies are low but the average loss payments per claim are high.

Table 2
Theft Results for 1987-90 Models in Border Regions

Region[1]	Exposure	Claim Frequency[2]	Average Loss Payment Per Claim	Average Loss Payment Per Insured Vehicle Year
Canadian Border Region	261,864	5.3	$2,616	$14
Mexican Border Region	196,107	14.0	6,010	84
U.S. Total	27,262,479	9.6	$2,424	$23

[1] The Canadian and Mexican border regions are all counties in states bordering Canada and Mexico that are not included in one of the 30 metropolitan areas.

[2] Based on claims per 1,000 insured vehicle years.

Table 3
Theft Results for 1987-89 Models in 30 Selected Cities Based on First Year of Experience for Each Model Year[1]

City	Claim Frequency[2]			Average Loss Payment Per Claim			Average Loss Payment Per Insured Vehicle Year		
	1987	1988	1989	1987	1988	1989	1987	1988	1989
New York[3]	17.1	19.0	15.5	$4,673	$4,984	$6,164	$ 80	$95	$96
Houston	34.7	28.0	27.5	3,167	2,990	3,518	110	84	97
San Antonio	23.7	20.9	17.4	6,628	3,701	2,957	157	77	52
Detroit	18.3	16.0	18.2	3,393	2,711	2,285	62	43	42
Dallas	22.4	20.7	28.3	2,336	1,964	1,252	52	41	36
Miami	13.3	11.4	8.9	3,319	4,138	3,914	44	47	35
San Diego	21.1	19.6	14.4	1,476	1,826	2,225	31	36	32
Los Angeles	16.2	15.5	11.4	2,192	2,041	2,731	36	32	31
Pittsburgh	10.2	7.9	8.4	3,303	3,907	3,858	34	31	32
Chicago	15.0	13.7	13.0	2,294	2,314	2,200	34	32	29
New Orleans	16.0	15.3	10.9	1,489	1,542	2,250	24	24	25
Sacramento	19.6	16.1	12.3	2,171	1,627	1,591	42	26	20
Phoenix	13.8	15.3	10.9	1,317	2,415	1,949	18	37	21
Philadelphia[3]	5.5	6.4	5.1	3,103	3,672	4,356	17	23	22
Kansas City	15.6	12.6	10.4	2,004	1,631	2,009	31	20	21
Atlanta	8.2	8.2	7.6	2,587	2,580	2,279	21	21	17
Cleveland	12.1	9.3	8.4	2,690	2,193	1,944	33	20	16
San Francisco	16.9	14.8	11.1	1,169	1,429	1,430	20	21	16
Portland (Ore.)	19.6	23.2	13.7	1,285	818	1,076	25	19	15
St. Louis	7.1	6.8	7.4	2,348	2,325	2,413	17	16	18
Baltimore	12.3	9.7	7.8	1,672	2,083	1,890	20	20	15
Washington, DC	10.6	9.0	7.5	1,837	1,887	2,228	19	17	17
Columbus (Ohio)	11.7	9.6	8.3	1,315	1,772	2,177	15	17	18
Tampa	8.2	7.4	6.8	1,736	2,974	1,596	14	22	11
Denver	19.2	14.4	10.9	860	950	1,313	16	14	14
Cincinnati	11.9	9.5	6.1	1,630	917	949	19	9	6
Milwaukee	9.8	7.6	10.7	590	896	1,527	6	7	16
Seattle	13.6	12.8	9.4	1,556	751	988	21	10	9
Minneapolis	11.1	8.2	5.9	752	1,129	1,551	8	9	9
Norfolk	6.7	6.3	5.7	713	1,286	1,876	5	8	11
U.S. Total	10.9	9.9	8.8	$2,454	$2,457	$2,668	$27	$24	$24

[1] Selected cities are the 30 metropolitan statistical areas with the largest populations, excluding Boston as given in *Statistical Abstract of the United States* (1989, U.S. Bureau of the Census, Washington, DC: U.S. Government Printing Office). Boston was exluded as no comparable insurance theft data were available for Massachusetts.

[2] Based on claims per 1,000 insured vehicle years.

[3] The New Jersey counties are excluded from the metropolitan statistical area.

Table 2 presents the claim frequency, average loss payment per claim, and average loss payment per insured vehicle year for the two border regions. Theft losses for the Mexican border region are dramatically higher than those for the Canadian border region; the average loss payment per insured vehicle year for the Mexican border region is more than six times that of the Canadian border region. The Mexican border region's average loss payment per theft claim of $6,010 is higher than the total metropolitan area result for any of the cities, indicating that many of the theft claims in this region involve total thefts.

1987, 1988, and 1989 Model Year Losses

Table 3 lists the claim frequency, average loss payment per claim, and average loss payment per insured vehicle year for each total metropolitan area based on the first year experience of 1987, 1988, and 1989 model year vehicles. The cities are listed in the same order used in Table 1. Each year's results are based on that model year's theft experience through December of the given year. For the United States overall from 1987 to 1989, there was a decrease of 2.1 claims per 1,000 insured vehicle years, an increase of $214 in the average loss payment per claim, and a decrease of $3 in the average loss payment per insured vehicle year. The amount of change between 1987 and 1989 varied considerably among the metropolitan areas. San Antonio had the largest change in average loss payment per insured vehicle year with a drop of $105. Most of this decrease is due to the decline in the average theft payment per claim from $6,628 in 1987 to less than $3,000 in 1989.

Other cities with large percentage changes in the average loss payment per insured vehicle year between 1987 and 1989 include Milwaukee and Norfolk with increases of more than 100 percent and Cincinnati with a decrease of 70 percent. Table 3 also shows that theft patterns across time in the various metropolitan areas differ greatly. Depending on the city, large increases or decreases are shown for both theft claim frequencies and for average loss payment per claim.

Table 4 provides the claim frequency, average loss payment per claim, and average loss payment per insured vehicle year for each border region by year. All three categories of theft losses for the Mexican border region increased considerably from 1987 to 1989, with the average loss payment per insured vehicle year more than doubling. Results for the Canadian border region are mixed, with the claim frequency decreasing and the average loss payment per claim and average loss payment per insured vehicle year increasing.

Although the results in Tables 3 and 4 are based on exposures of at least 5,000 insured vehicle years, they are subject to larger variations than the results presented in Tables 1 and 2, which are based on larger exposures.

Table 4
Theft Results for 1987-89 Models in Border Regions Based on First Year of Experience for Each Model Year

Region[1]	Claim Frequency[2]			Average Loss Payment Per Claim			Average Loss Payment Per Insured Vehicle Year		
	1987	1988	1989	1987	1988	1989	1987	1988	1989
Canadian Border Region	5.5	5.4	4.6	$2,109	$2,574	$93,23	$12	$14	$15
Mexican Border Region	11.9	13.7	15.8	5,010	7,097	8,130	60	97	128
U.S. Total	10.9	9.9	8.8	$2,454	$2,457	$2,668	$27	$24	$24

[1] The Canadian and Mexican border regions are all counties in states bordering Canada and Mexico that are not included in one of tht 30 metropolitan areas.

[2] Based on claims per 1,000 insured vehicle years.

Table 5
Vehicles with the Highest Theft Results in New York Metropolitan Area[1] 1987-90 Models

Vehicles	Exposure	Claim Frequency[2]	Average Loss Payment Per Claim	Average Loss Payment Per Insured Vehicle Year
Highest Claim Frequencies				
Volkswagen Jetta 4D	8,159	**72.1**	$1,679	$121
Hyundai Excel 4D	21,564	**68.9**	885	61
Hyundai Excel 2D	10,821	**57.6**	974	56
Pontiac Firebird	7,070	**56.1**	8,563	480
Chevrolet Caprice 4D	6,403	**49.6**	7,243	359
Highest Average Loss Payment Per Claim				
Lincoln Mark VII	5,504	15.0	**$15,019**	$225
Lincoln Town Car	13,080	20.9	**14,000**	293
Lincoln Continental	5,029	5.1	**13,321**	68
Ford Thunderbird	8,512	7.7	**10,965**	84
Nissan Maxima 4D	19,953	13.3	**9,960**	132
Highest Average Loss Payments Per Insured Vehicle Year				
Pontiac Firebird	7,070	56.1	$ 8,563	**$480**
Chevrolet Camaro	7,035	44.2	8,755	**387**
Chevrolet Caprice 4D	6,403	49.6	7,243	**359**
Chevrolet Monte Carlo 2D	5,705	39.5	8,049	**318**
Lincoln Town Car	13,080	20.9	14,000	**293**
New York Total	**1,057,730**	**17.3**	**$5,174**	**$90**

[1] The New Jersey counties are excluded from the New York metropolitan area.

[2] Based on claims per 1,000 insured vehicle years.

Vehicle Series with the Worst Theft Results: New York, Los Angeles, and Chicago

Theft losses for individual vehicle series were computed for the three largest metropolitan areas: New York, Los Angeles, and Chicago. Each of these cities had over one million years of exposure and at least 49 vehicle series meeting the minimum exposure requirement of 5,000 insured vehicle years. It is important to keep in mind that some of the lower volume vehicle series, such as the Chevrolet Corvette, all Porsches, and some BMWs, that typically have extremely high theft losses, failed to meet these minimum exposure requirements.

Table 5 lists the vehicles with the worst theft results in the New York metropolitan area. The four-door Volkswagen Jetta had the highest claim frequency of 72.1 claims per 1,000 insured vehicle years, which was more than four times the overall New York City average of 17.3. Although the Volkswagen Jetta and Hyundai Excel have high claim frequencies, their low average loss payments

Table 6
Vehicles with the Highest Theft Results in Los Angeles Metropolitan Area
1987-90 Models

Vehicles	Exposure	Claim Frequency[1]	Average Loss Payment Per Claim	Average Loss Payment Per Insured Vehicle Year
Highest Claim Frequencies				
Volkswagen Jetta 4D	5,922	**142.9**	$ 947	$135
Hyundai Excel 4D	22,934	**91.2**	712	65
Suzuki Samurai 4x4	7,657	**81.6**	1,159	95
Hyundai Excel 2D	12,981	**55.9**	838	47
Toyota Pickup 1/2 T 4X4	6,020	**45.0**	2,634	118
Highest Average Loss Payment Per Claim				
Mazda RX-7 Coupe	5,052	9.2	**$6,160**	$ 57
Chevrolet Camaro	10,040	15.0	**6,103**	92
Honda Prelude	9,843	23.8	**5,360**	128
Acura Legend 4D	8,789	2.7	**4,639**	12
Ford Thunderbird	12,195	4.7	**4,463**	21
Highest Average Loss Payments Per Insured Vehicle Year				
Volkswagen Jetta 4D	5,922	142.9	$ 947	**$135**
Honda Prelude	9,843	23.8	5,360	**128**
Toyota Pickup 1/2 T 4X4	6,020	45.0	2,634	**118**
Suzuki Samurai 4X4	7,657	81.6	1,159	**95**
Chevrolet Camaro	10,040	15.0	6,103	**92**
Los Angeles Total	**1,069,426**	**15.4**	**$2,272**	**$35**

[1] Based on claims per 1,000 insured vehicle years.

per claim suggest that many claims are for stolen components such as radios. The vehicles with the three highest average loss payments per claim were all Lincoln models. The Lincoln Mark VII's average of $15,019 is nearly three times the New York average of $5,174, and it is also much higher than the average theft claim payment for any vehicle in either Los Angeles or Chicago. Clearly, a large percentage of these claims involve the theft of the entire vehicle. The Pontiac Firebird ($480) and Chevrolet Camaro ($387) have the highest average loss payment per insured vehicle year with results more than four times the New York average of $90. These results are also appreciably higher than those for any vehicle in both Los Angeles and Chicago.

The vehicles with the worst theft results in the Los Angeles metropolitan area are listed in Table 6. As in New York, the four-door Volkswagen Jetta and the two-door and four-door Hyundai Excels were all on the list of vehicles with the highest claim frequencies. Volkswagen Jetta's result of 142.9

Table 7
Vehicles with the Highest Theft Results in Chicago Metropolitan Area
1987-90 Models

Vehicles	Exposure	Claim Frequency[1]	Average Loss Payment Per Claim	Average Loss Payment Per Insured Vehicle Year
Highest Claim Frequencies				
Hyundai Excel 4D	10,122	**70.3**	$ 674	$ 47
Cadillac DeVille 4D	11,119	**56.2**	2,077	117
Cadillac Brougham 4D	5,682	**38.6**	3,915	151
Hyundai Excel 2D	6,331	**36.8**	693	26
Pontiac Firebird	8,734	**32.3**	5,421	175
Highest Average Loss Payment Per Claim				
Chevrolet Camaro	10,397	31.7	**$5,485**	$174
Pontiac Firebird	8,734	32.3	**5,421**	175
Chevrolet Chevyvan 3/4 T	10,772	13.6	**5,095**	69
Chevrolet T10 Blazer 4X4	11,013	28.7	**4,966**	142
Chevrolet Astro Cargo Van 4X2	5,148	12.9	**4,585**	59
Highest Average Loss Payments Per Insured Vehicle Year				
Pontiac Firebird	8,734	32.3	$5,421	**$175**
Chevrolet Camaro	10,397	31.7	5,485	**174**
Cadillac Brougham 4D	5,682	38.6	3,915	**151**
Chevrolet T10 Blazer 4X4	11,013	28.7	4,966	**142**
Cadillac DeVille 4D	11,119	56.2	2,077	**117**
Chicago Total	**1,231,136**	**13.1**	**$2,181**	**$28**

[1] Based on claims per 1,000 insured vehicle years.

claims per 1,000 insured vehicle years is more than nine times the overall Los Angeles result of 15.4 and nearly 15 times the U.S. average of 9.6. Jetta's claim frequency of 142.9 translates into approximately one out of every seven Jettas in the Los Angeles area reporting a theft claim in a given year. The Mazda RX-7 coupe had the highest average loss payment per claim of $6,160. Four of the five vehicles with the highest average loss payment per insured vehicle year and all five with the highest claim frequencies are imported.

Table 7 lists the vehicles with the highest theft results in the Chicago metropolitan area. The four-door Hyundai Excel had the highest claim frequency of 70.3, which is over five times the Chicago average of 13.1 claims per 1,000 insured vehicle years. Two Cadillac models also made the list of cars with the highest theft claim frequencies. The Chevrolet Camaro and Pontiac Firebird had the highest average loss payments per claim, $5,485 and $5,421, respectively. The other three vehicles with the highest average loss payments per claim are Chevrolet vans and utility vehicles. As in New York, the Pontiac Firebird and Chevrolet Camaro top the Chicago list of vehicles with the highest average loss payment per insured vehicle year. All five vehicles with the highest average loss payments per insured vehicle year are manufactured by General Motors.

Appendix A

Counties Contained in the Metropolitan Statistical Areas By Size of Metropolitan Area

Metropolitan Area	State	Counties*
New York	New York	*Bronx, Kings,* Nassau, *New York*, Orange, Putnam, *Queens, Richmond,* Rockland, Suffolk, Westchester
Los Angeles	California	*Los Angeles,* Orange, Riverside, San Bernardino, Ventura
Chicago	Illinois	*Cook*, Du Page, Grundy, Kane, Kendall, Lake McHenry, Will
	Indiana	Lake, Porter
	Wisconsin	Kenosha
San Francisco	California	Alameda, Contra Costa, Marin, Napa, *San Francisco,* San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma
Philadelphia	Pennsylvania	Bucks, Chester, Delaware, Montgomery, *Philadelphia*
Detroit	Michigan	Lapeer, Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, *Wayne*
Dallas	Texas	Collin, *Dallas,* Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant
Washington, DC	District of Columbia	*District of Columbia*
	Maryland	Calvert, Charles, Frederick, Montgomery, Prince George's
	Virginia	Alexandria City, Arlington, Fairfax, Fairfax City, Falls Church City, Loudoun, Manassas City, Manassas Park City, Prince William, Stafford
Houston	Texas	Brazoria, Ford Bend, Galveston, *Harris,* Liberty, Montgomery, Waller
Miami	Florida	Broward, *Dade*
Cleveland	Ohio	*Cuyahoga,* Geauga, Lake, Lorain, Medina, Portage, Summit
Atlanta	Georgia	Barrow, Butts, Cherokee, Clayton, Cobb, Coweta, De Kalb, Douglas, Fayette, Forsyth, *Fulton,* Gwinnett, Henry, Newton, Paulding, Rockdale, Spalding, Walton

Appendix A (cont'd)
Counties Contained in the Metropolitan Statistical Areas
By Size of Metropolitan Area

Metropolitan	State	Counties[*]
St. Louis	Missouri	Franklin, Jefferson, St. Charles, St. Louis, *St. Louis City*
	Illinois	Clinton, Jersey, Madison, Monroe, St. Clair
Seattle	Washington	*King*, Pierce, Snohomish
Minneapolis	Minnesota	Anoka, Carver, Chisago, Dakota, *Hennepin,* Isanti, Ramsey, Scott, Washington, Wright
	Wisconsin	St. Croix
Baltimore	Maryland	Anne Arundel, Baltimore, *Baltimore City,* Carroll, Harford, Howard, Queen Anne's
Pittsburgh	Pennsylvania	*Allegheny,* Beaver, Fayette, Washington, Westmoreland
San Diego	California	*San Diego*
Tampa	Florida	Hernando, *Hillsborough,* Pasco, Pinellas
Phoenix	Arizona	*Maricopa*
Denver	Colorado	Adams, Arapahoe, Boulder, *Denver,* Douglas, Jefferson
Cincinnati	Ohio	Butler, Clermont, *Hamilton,* Warren
	Kentucky	Boone, Campbell, Kenton
	Indiana	Dearborn
Milwaukee	Wisconsin	*Milwaukee,* Ozaukee, Racine, Washington, Waukesha
Kansas City	Kansas	Johnson, Leavenworth, Miami, Wyandotte
	Missouri	Cass, Clay, *Jackson,* Lafayette, Platte, Ray
Portland	Oregon	Clackamas, *Multnomah,* Washington, Yamhill
	Washington	Clark
Norfolk	Virginia	Chesapeake City, Gloucester, Hampton City, James City, Newport News City, *Norfolk City,* Poquoson City, Portsmouth City, Suffolk City, Virginia Beach City, Williamsburg City, York
Sacramento	California	El Dorado, Placer, *Sacramento,* Yolo

Appendix A (cont'd)

Counties Contained in the Metropolitan Statistical Areas By Size of Metropolitan Area

Metropolitan	State	Counties[*]
New Orleans	Louisiana	Jefferson, *Orleans*, St. Bernard, St. Charles, St. John the Baptist, St. Tammany
Columbus	Ohio	Delaware, Fairfield, *Franklin,* Licking, Madison, Pickaway, Union
San Antonio	Texas	*Bexar,* Comal, Guadalupe

[*] The county given in italic type is the central most urban county.

Source: U.S. Bureau of the Census 1989. *Statistical Abstract of the United States.* Washington, DC: U.S. Government Printing Office.

Appendix B

Counties in Regions Bordering Mexico and Canada

Border Region	State	Counties
Mexican Border Region	Texas	Brewster, Cameron, Culberson, Dimmit, El Paso, Hidalgo, Hudspeth, Jeff Davis, Kinney, Maverick, Presidio, Starr, Terrell, Val Verde, Webb, Zapata
	New Mexico	Dona Ana, Eddy, Grant, Hidalgo, Lea, Luna, Otero
	Arizona	Cochise, Pima, Santa Cruz, Yuma
	California	Imperial
Canadian Border Region	Maine	Aroostook, Franklin, Oxford, Somerset, Washington
	New Hampshire	Coos
	Vermont	Essex, Franklin, Grand Isle, Orleans
	New York	Clinton, Erie, Franklin, Jefferson, Niagara, St. Lawrence
	Michigan	Chippewa
	Minnesota	Cook, Kittson, Koochiching, Lake, Lake of the Woods, Roseau, St. Louis
	North Dakota	Bottineau, Burke, Cavalier, Divide, Pembina, Renville, Rolette, Towner
	Montana	Blaine, Daniels, Flathead, Glacier, Hill, Liberty, Lincoln, Phillips, Sheridan, Toole, Valley
	Idaho	Boundary
	Washington	Ferry, Okanogan, Pend Oreille, Stevens, Whatcom

Source: U.S. Bureau of the Census 1989. *Statistical Abstract of the United States.* Washington, DC: U.S. Government Printing Office.

Appendix C

Definitions

Average Loss Payment per Claim -- The total of all loss payments made for the claims for a group of vehicles, divided by the number of claims paid.

Average Loss Payment per Insured Vehicle Year -- For a group of vehicles, the product of Claim Frequency and Average Loss Payment per Claim, expressed as dollars per insured vehicle year. *It should be noted that this definition differs from the commonly used insurance term, pure premium, but yields similar results.*

Claim Frequency -- The number of claims for a group of vehicles, divided by the exposure for that group.

Deductible Amount -- That portion of the comprehensive loss borne by the policyholder.

Exposure -- The time interval an individual vehicle is insured. Exposure for a group of vehicles is expressed in units of insured vehicle years.

Loss Payment -- That portion of the comprehensive loss borne by the insurer; in general, the total comprehensive loss minus the deductible amount.

Theft Coverages -- The Coverage under which people insure their own car against loss caused by partial or total theft.

Vehicle Class -- There are four vehicle classes, defined as follows:

1. **Passenger Cars** -- There are four major body style groupings of passenger cars -- regular two-door models, regular four-door models, station wagons and passenger vans, and sports and specialty models. Sports or specialty models include all two-seater cars, all convertibles, all midsize and large cars with two or fewer designated rear seating positions, and all luxury cars. Each body style group is further divided into size class subgroups based on wheelbase (rounded to nearest inch) defined as follows:

   Small -- Vehicles with wheelbases less than or equal to 99 inches.
   Midsize -- Vehicles with wheelbases greater than 99 inches and less than or equal to 109 inches.

   Large -- Vehicles with wheelbases greater than 109 inches.

2. **Vans** -- Fully enclosed vehicles with either no hood or a very short hood, in which the engine is placed at least 50 percent behind the windshield. The driver's position is usually well forward, nearly beside the engine, usually within the forward 25 percent of the wheelbase. These vehicles are designed for cargo access door and rear door. The cargo area is not separated from the passenger area -- both are enclosed under the same roof.

3. **Pickups** -- Cargo-carrying vehicles, usually on a truck chassis, with an enclosed cab and a separate open cargo area. The open cargo area generally is a box with raised sides with an opening tailgate. There are also a small number of auto pickups which are similar to regular pickups except that they are built on a passenger car chassis. Pickups are further divided into two subgroups based on curb weight -- small pickups (less than 3,500 pounds) and standard pickups (3,500 pounds or more).

4. **Utility Vehicles** -- Vehicles built on a heavy-duty chassis capable of off-road use. They are of conventional construction with the driver behind the engine. The cargo and passenger areas are integral with the driver area. Many of these vehicles are equipped with soft or removable tops. Frequently, these vehicles are equipped with four-wheel drive. Utility vehicles are further divided into three subgroups based on wheelbase -- small utility vehicles (less than 100 inches), intermediate utility vehicles (from 100 to 120 inches), and large utility vehicles (greater than 120 inches).

Vehicle Identification Number (VIN) -- A code, variously comprising both numbers and letters; normally, 8 to 17 characters in length, assigned to each vehicle by its manufacturer. The VIN uniquely identifies the vehicle within at least a ten-year time span and, in recent model year vehicles, contains coding which identifies the make, series, model year, and other characteristics of each vehicle.

Vehicle Series -- A name denoting a family of vehicles, within a make, with the same wheelbase and a degree of commonality in construction such as body, chassis, etc.

Selected Publications

I89-1 *Insurance Injury Report, Passenger Cars, Vans, Pickups, and Utility Vehicles*, September 1990.

R89-2 *Insurance Collision Report, Passenger Vehicles, Vans, Pickups, and Utility Vehicles, 1989 Models During Their First Year, 1988 Models During their First Two years, 1987 Models During Their First Three Years*, December 1989.

R90-1 *Insurance Collision Report, Initial Results for 1990 Automobiles, July* 1990.

T89-1 *Insurance Theft Report; Passenger Cars, Vans, Pickups, and Utility Vehicles: 1989 Models During Their First Year, 1988 Models During Their First Two Years, 1987 Models During Their First Three Years*, May 1990.

A-5 *Automobile Insurance Losses, Collision Coverages; Relationships Between Losses and Vehicle Body Style, 1974 and 1975 Models*, December 1975.

A-7 *Automobile Insurance Losses, Collision Coverages; Annual Increases and Seasonal Variations 1972, 1973, 1974 and 1975 Models*, June 1976.

A-9 *Automobile Insurance Losses, Collision Coverage; A Comparison of Collision Claim Size Distributions for 1974-76 Models*, November 1977.

A-11 *Automobile Insurance Losses, Collision Coverage; The Consistency of the Loss Experience of Specific Vehicles Produced in Several Years, 1975 to 1978 Models*, June 1979.

A-12 *Automobile Insurance Losses, Collision Coverage; An Assessment of the Effects of the Federal Safety Bumper Standard on the Losses for 1972 Through 1978 Models*, June 1980.

A-13 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverage; The Effects of Car Size on Crash Losses, 1977-1980 Models*, May 1981.

A-14 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverage; Comparisons of the Loss Experience of Two- and Four-Door Cars, 1978, 1979, and 1980 Models*, May 1981.

A-16 *Automobile Insurance Losses, Collision Coverages; The Frequency of Claims Involving Salvage; Subcompact and Compact Cars; 1980 Models*, January 1982.

A-17 *Insurance Losses, Comprehensive Coverage; Non-Crash Fire Losses; 1979-1980 Models*, February 1982.

A-18 *Insurance Losses, Theft Coverage; The Distribution of Theft Loss Payment Amounts; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1981 Models During Their First Year, 1980 Models During Their First Two Years, 1979 Models During Their First Three Years*, June 1982.

A-19 *Insurance Losses, Theft Coverages; A Comparison of the Theft Loss Experience of General Motors Passenger Cars With and Without Factory-Installed Theft Deterrent Systems; 1980-1981 Models*, January 1983.

A-20 *Insurance Losses, Collision Coverages, A Comparison of the Collision Loss Experience of Subaru Models with 5 and 2.5 MPH Bumpers*, April 1983.

A-21 *Insurance Losses, Personal Injury Protection Coverages, Injury Claim Frequencies for Volkswagen Rabbits with Automatic and Manual Seat Belts, 1981, and 1982 Models*, April 1984.

A-22 *Insurance Losses, Collision Coverages, An Analysis of Salvage Credits, 1977 Through 1982 Model Year Cars*, July 1984.

A-23 *Injury and Collision Losses by Engine Option, Selected 1983 Models*, October 1985.

A-24 *Comparison of the Insurance Loss Experience of Unibody and Frame Construction Cars After a Collision Repair, 1981-82 Models*, October 1985.

A-25 *Relationships Between Losses and Vehicle Density, 1982-84 Models*, October 1985.

A-26 *Consistency of Model Year Injury Claim Frequency Results for Selected 1981-1983 Models*, May 1986.

A-27 *A Preliminary Evaluation of New York and New Jersey Insurance Injury Claim Results Before and After Enactment of Mandatory Seat Belt Legislation; 1983-85 Models,* May 1986.

A-28 *Insurance Injury Loss Experience in Eight States with Seat Belt Laws, 1983-86 Models,* July 1988.

A-29 *Insurance Losses Based on Garaging Location, 1985-87 Models,* June 1988.

A-30 *Automobile Insurance Losses, A Comparison of California and National Results,* May 1988.

A-31 *The Effect of Vehicle Component Parts Marking on Theft,* December 1989.

A-32 *Automobile Theft Losses By Size of Claim and in Selected States,* December 1989.

A-33 *Noncrash Fire Losses, 1986-88,* December 1989.

A-34 *An Analysis of Total Losses, 1984-88 Models,* May 1990.

Sponsoring Companies Aetna Casualty and Surety Company Aetna Casualty & Surety Company of America Aetna Casualty & Surety Company of Illinois AgSecurity Insurance Company Alaska Pacific Assurance Company Alfa Mutual General Insurance Company Alfa Mutual Insurance Company Alliance Assurance Company Ltd. Allied Insurance Company Allstate Indemnity Company Allstate Insurance Company Allstate Property and Casualty Insurance Company American & Foreign Insurance Company American Casualty Company of Reading Pennsylvania American Economy Insurance Company American Family Mutual Insurance Company American General Fire & Casualty Company American Lloyds Insurance Company American Manufacturers Mutual Insurance Company American Motorist Insurance Company American Protection Insurance Company American States Insurance Company American States Insurance Company of Texas American States Preferred Insurance Company Amica Mutual Insurance Company Assurance Company of America Athena Assurance Company Atlanta Casualty Company Atlantic Employers Insurance Company Atlas Assurance Company of America Automobile Insurance Company of Hartford Bankers Standard Insurance Company Bituminous Casualty Corporation Bituminous Fire & Marine Insurance Company Boston Old Colony Insurance Company Brotherhood Mutual Insurance Company Buckeye Union Insurance Company CalFarm Insurance Company Camden Fire Insurance Association Casualty Insurance Company Century Indemnity Company Charter Oak Fire Insurance Company Chubb Insurance Company of New Jersey Chubb Lloyds Insurance Company of Texas Church Mutual Insurance Company CIGNA Fire Underwriters Insurance Company CIGNA Insurance Company CIGNA Insurance Company of Illinois CIGNA Insurance Company of the Midwest CIGNA Insurance Company of Ohio CIGNA Insurance Company of Texas CIGNA Property and Casualty Insurance Company CNA Casualty of California Colonial Insurance Company Columbia Casualty Company Commercial Insurance Company of Newark Concord General Mutual Insurance Company Continental Casualty Company Continental Insurance Company Continental Insurance Company of New Jersey Cotton States Mutual Insurance Company Country Casualty Insurance Company Country Mutual Insurance Company Country Preferred Insurance Company Countrywide Insurance Company Covenant Insurance Company Criterion Casualty Company CUMIS Insurance Society Inc. Economy Fire and Casualty Company Empire Insurance Company Employers Insurance of Wausau Employers Mutual Casualty Company Erie Insurance Exchange Farm Bureau Mutual Insurance Company Inc. of Kansas Farm Bureau Mutual Insurance Company of Idaho Farm Bureau Mutual Insurance Company of Iowa Farm Bureau Mutual Insurance Company of Nebraska Farmers & Merchants Insurance Company Farmers Automobile Association of Pekin Illinois Farmers Insurance Company Inc. Farmers Insurance Company of Arizona Farmers Insurance Company of Idaho Farmers Insurance Company of Oregon Farmers Insurance Company of Washington Farmers Insurance Exchange Farmers Insurance of Columbus Inc. Farmers Mutual Insurance Company of Nebraska Farmers Texas County Mutual Insurance Company Farmington Casualty Company Farmland Mutual Insurance Company Federal Insurance Company Federal Kemper Insurance Company The Fidelity & Casualty Company of New York Fidelity and Deposit Company of Maryland Fidelity & Guaranty Insurance Company Fidelity & Guaranty Insurance Underwriters Inc. Firemen's Insurance Company of Newark First Fire and Casualty Insurance of Hawaii Inc. First Indemnity Insurance of Hawaii Inc. First Insurance Company of Hawaii Ltd. First National Insurance Company of America Foundation Reserve Insurance Company Inc. GEICO General Insurance Company GEICO Indemnity Company General Accident Insurance Company of America General Insurance Company of America The Glens Falls Insurance Company Globe Indemnity Company Gothaer Insurance Company Government Employees Insurance Company Great Northern Insurance Company Great West Casualty Company Green Mountain Insurance Company Inc. Grinnell Mutual Reinsurance Company Guaranty National Insurance Company Halcyon Insurance Company Harbor Insurance Company Harleysville Mutual Insurance Company Hartford Accident and Indemnity Company Hartford Casualty Insurance Company Hartford Fire Insurance Company Hartford Insurance Company of Connecticut Hartford Insurance Company of Illinois Hartford Insurance Company of the Midwest Hartford Insurance Company of the Southeast IDS Property Casualty Insurance Company Illinois Employers Insurance of Wausau Illinois Farmers Insurance Company Indemnity Insurance Company of North America Indiana Farmers Mutual Insurance Company Insurance Company of North America John Deere Insurance Company Kansas City Fire and Marine Insurance Company Kentucky Central Insurance Company KFB Insurance Company Inc. League General Insurance Company Liberty Insurance Corporation Liberty Mutual Fire Insurance Company Liberty Mutual Insurance Company Liberty Northwest Insurance Corporation London Assurance Lumbermens Mutual Casualty Company Maine Bonding and Casualty Company Maryland Casualty Company Mayflower Insurance Company Ltd. Merastar Insurance Company Merit Insurance Company Metropolitan Property and Liability Insurance Company Michigan Educational Employees Mutual Insurance Company Michigan Mutual Insurance Company Mid-Century Insurance Company Mid-Century Insurance Company of Texas Middlesex Mutual Assurance Company Midwest Mutual Insurance Company Montgomery Mutual Insurance Company Motor Club Insurance Association of Nebraska MCA Insurance Company Motors Insurance Corporation National-Ben Franklin Insurance Company of Illinois National Casualty Company National Fire Insurance Company of Hartford National General Fire & Casualty Company National General Insurance Company of Missouri National Grange Mutual Insurance Company National Standard Insurance Company Nationwide Agribusiness Insurance Company Nationwide General Insurance Company Nationwide Indemnity Insurance Company Nationwide Mutual Fire Insurance Company Nationwide Mutual Insurance Company Nationwide Property and Casualty Insurance Company New York Underwriters Insurance Company Newark Insurance Company Niagara Fire Insurance Company North Carolina Farm Bureau Mutual Insurance Company North Pacific Insurance Company Northbrook Indemnity Company Northbrook National Insurance Company Northbrook Property and Casualty Insurance Company Northern Insurance Company of New York Northwestern Pacific Indemnity Company Nutmeg Insurance Company Oklahoma Farm Bureau Mutual Insurance Company Oregon Automobile Insurance Company Pacific Employers Insurance Company Pacific Indemnity Company Pacific Insurance Company Pacific Insurance Company Ltd. Pekin Insurance Company PEMCO Insurance Company PEMCO Mutual Insurance Company Pennsylvania General Insurance Company Phoenix Insurance Company Potomac Insurance Company of Illinois Preferred Risk Insurance Company Progressive American Insurance Company Progressive Casualty Insurance Company Progressive County Mutual Insurance Company Progressive Gulf Insurance Company Progressive Mountain Insurance Company Progressive Northern Insurance Company Progressive Northwestern Insurance Company Progressive Preferred Insurance Company Progressive Southeastern Insurance Company Progressive Specialty Insurance Company Prudential Commercial Insurance Company Prudential General Insurance Company Prudential-LMI Commercial Insurance Company Prudential Property and Casualty Insurance Company The Prudential Property and Casualty Insurance Company of New Jersey Puerto Rican-American Insurance Company Ramsey Insurance Company Ranger Insurance Company Royal Indemnity Company Royal Insurance Company of America Royal Milbank Insurance Companies SAFECO Insurance Company of America SAFECO Insurance Company of Illinois SAFECO Lloyds Insurance Company SAFECO National Insurance Company Safeguard Insurance Company Scottsdale Insurance Company Sea Insurance Company Ltd. SECURA Insurance Selective Insurance Company of America Selective Insurance Company of the Southeast Selective Way Insurance Company Sentinel Insurance Company Ltd. Shelter General Insurance Company Shelter Mutual Insurance Company Shield Insurance Company Southern Guaranty Insurance Company Southern Heritage Insurance Company Standard Fire Insurance Company State Auto Insurance Company State Farm County Mutual Insurance Company of Texas State Farm Fire and Casualty Company State Farm General Insurance Company State Farm Mutual Automobile Insurance Company St. Paul Fire and Casualty Insurance Company St. Paul Fire & Marine Insurance Company St. Paul Guardian Insurance Company St. Paul Indemnity Insurance Company St. Paul Insurance Company St. Paul Insurance Company of Illinois St. Paul Insurance Company of North Dakota St. Paul Lloyds Insurance Company St. Paul Mercury Insurance Company St. Paul Property and Casualty Insurance Company Sun Insurance Office Ltd. Texas Farmers Insurance Company Texas Pacific Indemnity Company Transamerica Indemnity Company Transamerica Insurance Company Transamerica Insurance Company of Michigan Transamerica Insurance Company of Texas Transamerica Insurance Corporation of America Transamerica Premier Insurance Company Transamerica Specialty Insurance Company Transcontinental Insurance Company Transportation Insurance Company Travelers Indemnity Company Travelers Indemnity Company of America Travelers Indemnity Company of Illinois Travelers Indemnity Company of Rhode Island Travelers Insurance Company Truck Insurance Exchange Twin City Fire Insurance Company United Services Automobile Association United States Fidelity and Guaranty Company USAA Casualty Insurance Company Utica Mutual Insurance Company Valiant Insurance Company Valley Forge Insurance Company Vigilant Insurance Company Wausau Underwriters Insurance Company